Psychological Essentialism in context:

The influence of socio-cultural context and self-identity on essentialising social categories

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To my family,

For me reason of life

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Declaration

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Abstract

The aim of this thesis was to investigate some aspects of essentialist beliefs about other people. The empirical part of the thesis is constituted by four investigations. Study 1 and 2 built on some earlier work on essentialist beliefs about social categories, and supported previous findings about the dimensions of Natural Kind and Entitativity that underlie the concept of essentialism in the social world (Haslam, Rothschild, & Ernst 2000, which will be subsequently referenced as Haslam et al., 2000). Additionally, Study 1's results raised the hypothesis that cultural contexts may determine different perceptions of social groups: in the study the Informativeness measure did not load under Entitativity and was negative for Natural-Kind-ness, showing a tendency for subjects from multicultural contexts to see natural categories as not informative of individuals.

Analysis of the literature highlighted the need for further investigation exploring the role of social contexts in the way categories are essentialised and stimulated hypotheses about the occurrence of cross-cultural differences. Study 2, based on an Italian sample in Sardinia, tested this hypothesis further confirming Haslam et al.'s (2000) findings, and supported the theory that some differences in essentialist beliefs may be due to cultural effects. This finding showed that in social categorisation processes subjects from different social contexts may not rely on the same factors. For instance, while subjects from traditional contexts perceive biological aspects as informative of an individual's makeup, people from less traditional contexts regard those aspects as not informative.

Also, the role of a person's own identification with social categories was addressed by the two studies and the hypothesis that one's own categories are

seen as more essential received some support in both studies, particularly in relation to Natural Kind-ness. There is a tendency for individuals to "naturalise" personal social categories and this same tendency was also observed to be employed for the categorisation of minority groups in both Study 1 and 2.

Interestingly, the analysis of Study 1's data revealed that the structure of individual personal styles in the way individuals essentialise categories also corresponded to dimensions of Entitativity and Natural-Kind-ness. Personal styles vary along these two dimensions and may result in an individual being extreme in both dimensions, extreme in either one or the other dimension, or in none of them. This result was tested further in Study 3, whose purpose was to design a parsimonious measurement of essentialist beliefs and to explore individual styles in different samples of subjects, such as normally developing individuals and Autism Spectrum Disorder subjects. There was evidence for reliable individual differences in essentialising. There was little evidence of group differences in this study although an increase in the rating's extremeness was observed in the Autism Spectrum Disorder sample.

Finally, Study 4 tackled essentialism from the perspective of social categorisation, and considered some variables that previous research defined as fundamental in person construal: facial stimuli and verbal information (e.g., Macrae & Bodenhausen, 2000; Townsend et al., 2000; Macrae et al., 2005). The study provided evidence for the importance of verbal information in relation to the behavioural response of a target individual in a social interaction scenario, but no significant effect was observed in relation to facial stimuli. This thesis contributes new evidence to the discussions of psychological essentialism especially for the role of social contexts and category membership, and for

findings about cognitive styles of essentialism. Future directions for research on the role of social contexts in essentialist beliefs about other people, and on the effect of personal category membership in essentialism are suggested.

Chapter 1:

Psychological Essentialism set in context

1.1. Overall Summary and outline of the thesis

My primary purpose in writing this thesis is to approach the understanding of psychological essentialism from different angles. My first point of interest has been the analysis of whether essentialist beliefs can be described as a unitary phenomenon that presents cross-cultural commonalities (Bloch, Solomon, & Carey, 2001; Diesendruck, 2001; Gil-White, 2001). This question was investigated in the first two empirical studies, where participants were selected from two profoundly different environments (the multi-cultural London society and the mono-cultural Sardinian society).

Empirical evidence shows that essentialism represents a mechanism that despite some dissimilarities in the perception of certain categories (Demoulin, Leyens, & Yzerbyt, 2006; Haslam et al., 2000; Kalish, 2002), despite the occurrence of cross-cultural differences (Lockhart et al., 2009), and despite some historical peculiarities (Hirschfeld, 1996) has been observed in different cultures (Bloom & Gelman, 2008).

The first two investigations conducted for this doctoral thesis confirmed this position and showed the presence of some differences between the multi-cultural London society and the mono-cultural Sardinian society. Also, some differences in individuals' cognitive styles between Anglophone and Mediterranean cultures had been previously highlighted (Hampden-Turner & Trompenaars, 1993). Another aim of this work was the investigation of the extent to which essentialist beliefs are affected by personal category membership, and whether one's own categories would be more naturalised than other categories.

Social identity has been defined as "that part of an individual's self-concept which derives from his knowledge of his membership in a social group -

- or groups -- together with the value or emotional significance attached to that membership" (Tajfel, 1981; p. 255). There is broad agreement in the literature about the role that group or category membership (the two terms will be used interchangeably in this thesis) plays in an individual's self-identity, and the belief that personal identity is strongly influenced by group membership (Castano et al., 2002; p. 336) represents the main principle of Social Identity Theory (Tajfel, 1978; Tajfel & Turner, 1979). The role that category membership plays in essentialist beliefs was investigated in investigation 2 of Study 1 and Study 2 in the contexts of London and Sardinia.

Evidence that psychological essentialism is universally observed across different cultures (Bloom & Gelman, 2008) raised the possibility of seeing whether a measurement of essentialism could be designed and reliably utilised in the investigation of an array of essentialist beliefs, such as beliefs in the personality of individuals, in their religious attitudes, or in the social class they belong to. This investigation is the focus of study 3, which represents a first step into the design of a measurement of essentialist beliefs and brings some potentialities for further research.

Also, given the lack of research other than with normally developing subjects, a further investigation was run on a sample of Autism Spectrum Disorder subjects. This aspect is very new to the essentialist theory and can provide some insights into the understanding of how differences in processing the physical and social world in Autism Spectrum Disorder subjects (Happé, 1999) may lead to differences in the essentialist beliefs that an individual endorses.

Another subject of investigation has been social categorisation, with a

focus on beliefs about the understanding of the personality of other individuals. Investigation of personality characteristics within an essentialist framework has not been very popular so far. Scholarship shows that essentialist beliefs are preferentially held for particular personality traits, and that these beliefs are organised under a different structure than the two-dimensional structure composed of Natural Kind and Entitativity observed for beliefs about social categories (Haslam, Bastian, & Bissett, 2004).

Study 4, which is presented in Chapter 6, investigated the understanding of a target individual's personality traits through the extremeness of the ratings and the perceived confidence of the participants in their judgments in two different conditions. In the first condition the participants were presented with a neutral or a behavioural story and a photograph of a target person, and in the second condition they were presented with a neutral and a behavioural story of a target person without a photograph.

This thesis is composed of 7 chapters. Chapter 1 proposes a journey through the definition of the concept of essence in philosophical contexts, of psychological essentialism, and of the principle terms encountered along the way. In Chapter 1, the implications of psychological essentialism in psychology, and particularly in Cognitive and Social Psychology are discussed. The first part of the chapter introduces the discussion about theoretical influences in the elaboration of an essentialist approach to the physical world in western cultures.

The second part of the chapter provides the reader with the theoretical background of the terms that occur in the field of psychological essentialism, and of its contexts and functions in cognitive representations. This part of the chapter also focuses on categorisation, which is the study of how individuals make sense

of the world, form concepts, and classify entities into classes and domains. There are several different theories in the field of categorisation, and the essentialist view is one of them. The essentialist view proposes the attribution of essences as a way to classify entities, and particularly biological kinds. This section introduces the main theories of categorisation through five sub-sections, and outlines the core ideas and differences for each of them. Finally, the last section of the chapter talks about the transformation paradigm. The role of changes and mutation in categorisation and essentialist beliefs is discussed.

Chapter 2 introduces some of the most relevant work conducted on psychological essentialism: essentialism in early life, the structure of essentialist beliefs about social categories, the phenomenon of humanisation, and essentialism and social categorisation. Also, a last section of the chapter provides empirical evidence into the understanding of cultural differences in human cognition. This section aims at supporting the conceptual framework within which the cross-cultural investigations of this thesis have been carried out as part of the work into the understanding of how social contexts affect essentialist beliefs. The section is organised in four sub-sections that outline different fields of research and introduces the studies presented in Chapter 3 and 4.

The following four chapters present the empirical work carried out for this doctoral thesis, and are organised as individual papers with their own introduction and discussion of the results. Chapter 3 describes the first empirical investigation. The aim of Study 1 was to investigate essentialist beliefs about social categories. The study built on some former work run by Haslam et al. (2000) in the USA, which recruited a sample of participants from a conservative college. Haslam et al. (2000) highlighted a two-factor structure in the

explanation of essentialist beliefs, composed of the two dimensions of Natural Kind and Entitativity. My purpose was to replicate this study looking at cross-cultural differences in the occurrence of the two-factor explanation of essentialist beliefs, and at specific changes in essentialist beliefs about some social categories. Study 1 tested a sample of students recruited from a number of Universities in London.

Also, it explored individual category membership in order to broaden understanding of the role that membership plays on essentialist beliefs about one's own categories and others-categories. This investigation is presented in the second part of Chapter 3, and a discussion of the findings for the two investigations is presented separately after the results section.

Chapter 4 outlines the second empirical investigation conducted for this thesis. Study 2 used the same design as Study 1 and was run on a sample of participants recruited from a different socio-cultural context. For this study, participants were sampled from the traditional and mono-cultural society of Sardinia, which is an Italian island in the middle of the Mediterranean Sea. Previous evidence supports the occurrence of some differences in cognitive styles between Anglophone and Mediterranean cultures (Hampden-Turner & Trompenaars, 1993).

Furthermore, it is thought that the effect of multiculturalism should lead to a greater openness towards certain social categories and to a lower level of ingroup identification. This hypothesis is considered controversial and seems to apply to some groups more than others, for example multiculturalism may represent a threat to big majority groups that dislike the fact that minority groups maintain their own customs (Van Oudenhoven et al., 1998; Verkuyten & Thijs,

1999).

However, multiculturalism may also facilitate the positive evaluation of outgroups (see Verkuyten, 2005). In light of this evidence, I wanted to explore the nature of these differences further. My hypothesis was that the Sardinian population would produce stronger essentialist beliefs towards certain social categories as an effect of monoculturalism. As for the London sample, Sardinian participants were also tested on the self-categorisation scale.

The hypothesis for this investigation was that people from a less open and more traditional context would rate their own categories as more essentialist than people from a more open and less traditional environment. Similarly to Chapter 3, the findings for the two parts of the investigation are presented separately. A the end of Chapter 4 the findings of Study 1 (London sample) and Study 2 (Sardinian sample) for both the investigation on essentialist beliefs about social categories and the self-categorisation investigation will be jointly discussed and some conclusions will be drawn.

Chapter 5 explores the implications of measuring essentialist beliefs and reports a study that made the first steps towards developing a measurement of essentialism based on Natural-Kind-ness and Entitativity measures. This measurement was further tested on a sample of Autism Spectrum Disorder subjects, who have been observed to present a “different mind” in relation to the solution of cognitive tasks and in social contexts (Happé, 1999).

Chapter 6 reports a study that investigated beliefs of people about other individuals' personality traits through the presentation of some behavioural information and of visual stimuli. Two versions of the questionnaire were designed, and the subjects were tested on either the condition with or without

photographs. Each story was rated on two scales of which one concerned the personality traits of the target subject, and the other one the perceived confidence at rating those personality traits. Previous research had explored the implications of facial stimuli in impression making, showing that faces may influence people's behaviour and attitudes (Rule & Ambady, 2011). Therefore, my hypothesis was that individuals would show higher confidence ratings for the behavioural story than for the neutral story and lower confidence ratings for the conditions without photographs.

Chapter 7 provides a summary of the findings along with an evaluation of the work conducted in the thesis, and suggests further empirical developments and directions.

1.2. The shaping of the concept of essentialism through history

Essentialism refers to the belief that individuals, animals, and other entities have inner essences that are not likely to change over time. According to Gelman (2003), "essentialism is a pervasive, persistent reasoning bias that affects human categorisation in profound ways [.....], it is the result of several converging psychological capacities" (Gelman, 2003; p. 6). Similarly, Medin and Ortony (1989) insisted that the concept of psychological essentialism gravitates around the belief that core features are responsible for surface features, and this represents a fundamental heuristic that characterises our conceptual system.

One of the first accounts of essences in the western hemisphere was made by Plato more than 2000 years ago (Mastin, 2008) who introduced a vision of reality as a compound of two entities: *ontos* -- or ideas, or ideals -- on the one hand, and *phenomena* on the other hand. Whereas ideas are perfect and immortal, phenomena are related with contingent factors such as matter, time,

and space, and are therefore imperfect, deceptive, and prone to decay and death. According to Plato, the two forms are accessible through different channels: ideas are experienced through thoughts, and phenomena through senses. In fact, if reality can be perceived through senses, the truth is perceived by intuition and reason, as he discussed in the Socratic dialog "Meno".

The ideals that Plato described reside in God's design and purpose, and even though the material world strives for perfection, this can only be found in the original plan, or idea. This account also pervades some of the main monotheistic faiths and their teachings about the finiteness of the material world as opposed to the spiritual dimension. Plato argued that this dichotomy is embedded by human beings, whose body made of mortal substances encases a truly perfect divine ideal: the soul. The same concept is found in Christianity, Buddhism, and Hinduism.

It is believed that some of the very finest pieces of art ever produced in history would have never come into being if the existentialist crisis between perfection and imperfection would have not torn at the heart of some sensitive souls. As a young boy, Michelangelo Buonarroti was deeply touched by Girolamo Savonarola's sermons, whose condemnation of the material temptations in virtue of more spiritual aims from the pulpit of San Marco monastery in Florence in 1490 shook the foundation of the entire Catholic Church. The reading of Michelangelo's artistic production emphasises the torment generated by his inner battle between purity and impurity and his personal interpretation of the platonic concepts of idea and matter, which are summarised by the finished over the unfinished best observed in his late sculptures. He himself used to say that his very own purpose was to set free the

idea that hides under the matter:

"*The greatest artist does not have any concept*

which a single piece of marble does not itself contain

within its excess, though only

a hand that obeys the intellect can discover it".

Michelangelo Buonarroti (see Girardi, 1967)

It wasn't until Aristotle that what Plato called idea was referred to as essence, and matter as its opposite. Whereas matter is purely accidental stuff that needs the essence in order to acquire a form and a purpose, essence is indeed what allows matter to become real, and they need each other in order to realise themselves. This concept was also expressed in Aristotle's book known as Para Psyche, or De Anima, where the mind- or soul- is described as "the cause and principle" of the body, and which gives a purpose and a function to it. According to Aristotle's account, essence is thus the opposite of accident and in Greek is defined as "the what it has to be", or "the what it is".

Aristotle referred to the Ousía of individual things, which in English can be translated as being, or essence (Boeree, 2009). The ideas of Greek idealism were later spread within the Roman Empire through Plotinus under the theories of Neo-Platonism. Some accounts of essentialism are also found in Classical Humanism, which supported a view of human nature as unchangeable and eternal. In recent days, essentialism has been challenged by the Darwinian theory of the evolution of species: the unchanging nature of species suggested by essentialist accounts has been replaced by the modern scientific vision in which species change through time and their members might even not share essential properties (Atran, 1990).

This brief preface to essences in metaphysical terms introduces some of the main questions that researchers pose. It is the aim of Chapter 1 and 2 to explore psychological essentialism, and particularly what its approach in contemporary psychology and its role in people's lives are. Essentialism has been a long term issue in philosophy and the humanistic disciplines throughout the centuries, which has attracted the attention of social and cognitive psychologists only a few decades ago. This chapter will define psychological essentialism and its role in the understanding of human cognition.

1.3. A definition of the term

Essentialism is the view that there are properties that are essential to objects, whereas some other properties that are not essential are called accidental (Encyclopedia Britannica, 2012). Therefore, an essence is what makes an object or individual what it is, and it is understood as the totality of the essential properties of an entity. The non-essential characteristics are believed to have no impact over membership to a category, whereas essential properties are often conceived on the basis of necessity, or what is necessary for them to belong to a certain category. According to this view, the action of alteration or removal of the essential properties would simply destroy the identity of the object.

A conceptual difference exists between the positions that metaphysical essentialism and psychological essentialism defend, in fact while the former proposes the real existence of essences, the latter is concerned with the way human cognition works and the phenomena of essentialist tendencies in people's reasoning.

There are three points defining psychological essentialism in lay-people's beliefs. The first one is concerned with the fact that some categories come from

nature and are not made by human beings. This view holds that certain categories are natural kinds, real (v. artificial), discovered (v. invented), and stable or unchanging (Gelman, 2003). The second point refers to the belief that there is a hidden feature which is responsible for things being the way they are and sharing similarities with the other members of a category. This feature is, in fact, the essence. Under the essentialist account, categorisation is produced independently from either outer or inner similarities. In fact, the typical features of creatures may depend on essences but do not directly determine categorisation (Hampton, Estes, & Simmons, 2007). Finally, according to Gelman (2003), the perception of people is that there is a special connection between every-day words that refer to both natural kinds and social categories, and the anatomy of the real world. According to Gelman (2003), these three components are found in adults as well as pre-school children's categories.

In psychology, essentialism has remained fairly unexplored for decades until it attracted the attention of psychologists from different fields like Social, Cognitive, and Developmental Psychology. The term *psychological essentialism* was firstly mentioned by Allport in 1954 in his breakthrough work on prejudice, and later reintroduced by Medin and Ortony (1989) in their work on categorisation. A further development in the use of the term occurred when Yzerbyt et al. (1997) coined the term *subjective essentialism* to indicate that people make assumptions about another individual's disposition on the basis of his/her group membership. According to Yzerbyt et al. (1997), individuals are strongly influenced by the intrinsic properties of the group and tend to disregard the situational factors that collide with their view.

The notion of psychological essentialism, as suggested by some authors

(Haslam, Ernst, & Rothschild, 2000; 2002) can be seen in terms of two related concepts: Natural Kind and Entitativity.

The term *Entitativity* was introduced in 1958 by Campbell in order to indicate the perception of cohesion of social groups, and the extent to which they are seen as an entity. As per his definition, Entitativity is "the degree of having the nature of an entity, of having real existence" (Campbell, 1958; p. 17). Campbell suggested that the perception of groups' Entitativity is enhanced by factors like fate, salience, similarity, and boundaries. Some other factors have been identified as being constitutive of Entitativity, in particular similarity, proximity, and common goals, although they are not been thought of as essential (Hamilton & Sherman, 1996; Hamilton et al., 1998).

This view was later supported by Lickel et al. (2000) who observed that a combination of the factors mentioned above, along with some other factors such as interaction, similarity amongst the members, and the status of the group as perceived by its members, are linked to what they defined *groupness*. McGarty et al. (1995) are thought to be the first ones to have linked Entitativity to psychological essentialism, showing beliefs of homogeneity and distinctiveness in group Entitativity.

On the other hand, the term *Natural Kind* was coined in philosophical contexts by Hume and mentioned in his "Treatise of Human Nature" (1739). Hume's writing investigated the psychological basis of human nature and proposed a distinction between natural virtues -- which, according to him, correspond to qualities such as altruism, generosity, and humbleness -- and artificial virtues -- among which he indicated justice, loyalty, and chastity. An early account of the term Natural Kind in philosophy is also found in John

Venn's writing "The logic of chance" (1866) and was used to indicate natural species, or classes, as found in zoology and botany. A natural kind entity is described as a physical object that is associated with a name and that is opposite to an artefact kind (Gopnik & Meltzoff, 1997). As argued by some philosophers, the belief for natural kind entities is that they have inner properties that determine their outer appearance (Machery, 2005).

The similarities shared by natural kind entities also determine what is called inductive potential, which makes people make inferences about Natural Kind entities (Kornblith, 1993; Kripke, 1980).

Essence is hence understood as the cause for category members to share certain characteristics. In fact, as Estes (2003) argued, when individuals categorise entities under a given category, they understand those entities as owning the category essences (p. 200). The position of some authors about psychological essentialism (Gelman, 2003; Medin, 1989) is that it constitutes a cognitive bias that helps categorizing and that is proved to be used since a young age in children. Consequently, essentialism is not an explanation of the architecture of the world but is a tool that aids the understanding of the nature of entities and of their property of remaining unchanged through growth, reproduction, and physical changes. This claim supports the topic discussed in the next section: historical continuity.

1.4. Historical continuity

When Schopenhauer (2010) said that nothing that is essential ever changes he recalled the concept of historical continuity, which refers to both the stability of some entities in a changing world, and the stability of some fundamental aspects of human history, like human nature itself and of some geo-

morphological factors in the environment (Gerschenkron, 1962).

Gelman (2003) suggested that attention to historical continuity, which can be observed in adults as well as children, plays a role in the perception of identity and constitutes a mechanism rooting back to how the human cognitive system works. Historical continuity makes us recognise the identity of individuals and artefacts, and it can over-ride both the appearance and descriptive properties of an object when tracking identity (Kripke, 1980). Frazier and Gelman (2009) researched historical continuity in children and argued that it represents a fundamental aspect of human cognition, and that it is also linked to essentialism. In their work, pre-school children were observed to appreciate how the historical path of objects influences the perception of their meaning and identities (Frazier & Gelman, 2009).

All of us have witnessed this mechanism at some point in our life. For example, a recent newspaper report described the auction of the teacup that Lady Gaga used during the after-tsunami tour in Japan, which was marked with her lipstick. The fact that the teacup's bids reached the equivalent of £47K in Japanese currency suggests that people believed that it was marked with some of the true essence of the singer. Hood (2009) described a very similar mechanism by investigating the responses that individuals attribute to objects or places that have had a distinctive role in history. He observed a number of mechanisms such as the difficulty that landlords encounter in selling properties where an assassination was committed.

Another mechanism that Hood (2009) investigated was the tendency of people to be attracted by real pieces of lived history, out of which auction houses make a fortune, or by objects that belonged to famous people. As in the example

with Lady Gaga's teacup, this mechanism seems to be stronger with objects that are believed to have been intimate with the celebrity, like clothing or underwear items worn by actresses, or music instruments played by musicians. In his book, Hood (2009) mentions the example of the clothes charity www.clothesoffourback.com, which sells items worn by celebrities at high-profile events, like the Oscars night. As part of the service, a dry-cleaning of the items on sale is also offered by the company, but eventually dismissed by all buyers who show no interest in having their icons' body essences cleaned off the precious fabrics. To this extent, the phenomenon of "essence contamination" is comparable to contagion by germs: whereas germs are small biological entities and essences are non-biological entities, the similarities are found in the quality of transferability to others, difficulty to get rid of, and invisibility (Gelman, 2003).

Likewise, the developmental psychology literature offers some examples of a similar mechanism in children. Usually, two and three-year old children own a blanket or soft toy with which they build a deep affection. Psychologists call this item the transitional object, which is understood as a transition tool for the child in the passage from sleeping with the mother to sleeping alone, when a bigger extent of emotional reassurance is needed. The transitional object is usually carried everywhere, and the main rule that distinguishes it is that the child does not want it to be replaced with any look-alike objects, or washed (Hood, 2009). Winnicott (1969), who first theorised the role of the transitional object, argued that it represents the mother's essence in the mother's absence.

1.5. Functional origins and contexts of psychological essentialism

The previous section defined the principle terms that relate to

essentialism in order to provide a solid ground for the theoretical discussion about the reasons why essentialism occurs. A considerable amount of debate that generates around essentialism concerns two particular aspects. On the one hand researchers argue that essentialism represents a conventional and infallible law under which all natural terms are associated with essences, when in fact the use of Natural Kind terms has been observed to vary and be contingent upon contextual factors (Braisby, Frank, & Hampton, 1996). On the other hand, although authors acknowledge that essences are purely a theoretical construct (Medin, 1989), essentialism seems to constitute a functional way of representing categories (Gelman & Wellman, 1991; Keil, 1994).

However, the tendency of attributing to psychological essentialism a function on the basis of its usefulness, rather than saying that people make use of it accidentally, or perhaps intuitively, has also been criticised. Barret (2001) argues that there is a conceptual gap between the argument of essentialism as a helpful strategy, and the argument that natural selection made it occur on the basis of the advantages it brings. He suggests that there should be more clarity about the kind of entities that evolution made us hold essentialist beliefs about, and the qualities of these entities that induce our essentialist reasoning.

This clarification should provide some insightful material about the fact that essentialist thinking -- first evolved in a science-less world -- still occurs in a much changed world. Possibly, the reasons why essentialism has not yet been replaced reside in the many potentialities it bears, amongst which are its statistical validity and its deep connection to cultural conventions (Medin, 1989).

Medin and Ortony (1989) consider psychological essentialism as the continuation of what metaphysical essentialism had previously argued. As

mentioned in the first section of this chapter, Aristotle suggested that a way of defining the identity of objects could be to describe their external appearance. However, different descriptions of an object could result in the attribution of many essences to the same object and would weaken the quality of uniqueness, which synthesizes the true nature of objects and which remains constant through external or internal changes (Medin & Ortony, 1989).

In this conceptual gap generated by philosophical conceptualizations and by the human perception of objects and living things, psychological essentialism's aim is not to demonstrate that essences exist, but to understand the cognitive mechanism that leads people to believe that there are essences. The study of essentialism aids understanding of the human's mind and links the study of conceptual representation in cognitive psychology, the study of the way cognitive and emotional representation are shaped through social interaction in social psychology, and lay-people's beliefs that things have essences. According to Barret (2001), people may see essentialism as an efficacious way of thinking about natural categories, and may learn to essentialise Natural Kind categories because this is helpful.

This argument introduces to the question about whether all categories are essentialised, or if some categories are essentialised whereas some others are not. As Gelman (2003) argued, essentialism comes into play in Natural Kind domains such as living kinds (like human beings, plants, and animals), non-living biological kinds (like water, or minerals), and social categories (like race, gender, and age categories), but not in artefact kinds. On a different position, Bloom (1996) argued that historical origins constitute an essence for artefacts, and that an artefact's identity is determined by the intention of its designer.

Bloom's theory is based on Levinson's (1993) position, which propounded that the historical intention behind a piece of art or an artefact determines what that object is and which category it belongs to. Hence, a broad variety of artefacts are distinguished on the basis of the brand that produces them: for example owing a pair of Louboutin shoes has recently become a status symbol for some women and despite other brands can be as good, they lack the essence attributed to Louboutin.

Barret (2001) suggested that differences occur in the essentialisation of substances and whole organisms: substances lack a causal agent as well as the complex properties that are more typical of whole bodies. Also, when they are split into particles they do not go through a change of status as whole bodies do. On the contrary, whole organisms are characterised by a causal agent that determine a number of properties. They also have more complex features, like psychological and behavioural ones. Finally, they usually have purposes. For instance, we can think of the essence of some products, like Champagne, which is only produced in a particular region of France with a particular method. Also, in the natural world substances like gold and water (H2O) are attributed special essences. In view of this distinction, Barret (2001) defined "shallow" the essentialism referred to substances, and "deep" the essentialism of whole-properties.

On the other hand, some authors suggested that essentialism is not concerned with Natural Kind categories only but with social categories also (Gelman et al., 1994; Hirschfeld, 1994), and that categories like ethnicity, for example, have been assimilated into the natural categories system (Gil-White, 2001). Rothbart and Taylor (1992) see the categorisation of ethnic groups under

the Natural Kind umbrella as an overextension of categorisation of biological kinds. They discussed this phenomenon first and observed that, although social categories are thought to share similarities with artefacts, they also share elements found in Natural Kind entities, such as inherence, inductive potential, and inalterability. For instance, people find in physical traits such as skin pigment the evidence that social categories like race have a biological basis (Rothbart & Taylor, 1992).

However, according to Haslam et al. (2000), not all social categories are perceived as natural kinds but rather as socially constituted or fuzzy. In support of this tendency Hirschfeld (1995; 1996; 1997; 2001) suggested that individuals have a cognitive domain that is designed for processing "human kind" information, and through which social categories are attributed discreteness, naturalness, and inherence. This involves beliefs that the psychological and phenotypic traits of a certain race are maintained through generations.

This concept departed from some empirical studies in which it was found that children's beliefs are not transmitted by parents through explicit teaching (Hirschfeld, 2001), and are not formulated on the basis of external appearance (Hirschfeld, 1996), but rather seem to depend upon linguistic information. The hypothesis that this is an innate and universal tendency in human beings, and that it is also domain specific for social groups was advanced by Sperber and Hirschfeld (2004).

This view, supported by Hirschfeld (1995; 1996; 1997; 2001), Gil-White (2001), and Atran (1998), suggests that humans master a natural ability to process biological categories, which has developed through the evolution of the species and which serves adaptability purposes. In particular, Gil-White (2001)

argued that people make analogies between biological and social categories, and that human groups that resemble races -- like ethnicities -- are the ones that happen to be essentialised. In fact, although ethnicities are not races, they require that membership is transmitted from parents to the offspring. Gil-White's (2001) argument in support of this theory is that there are two factors that influence essentialist beliefs in the categorisation of human groups. The first one refers to the groups' qualities of being descent-based and endogamous. The second one is that as a consequence non-biological groups tend to be treated as biological. Nonetheless, this view implies that individuals have some knowledge about endogamy, but whereas adults can have this knowledge the same does not apply to children.

However, Gelman (2003) did not agree with this position and argued that Gil-White's theory does not provide evidence for essentialist abilities in the early years (Gelman, 2003). Moreover, the conclusions drawn by Hirschfeld (1995; 1996; 1997; 2001) and by Sperber and Hirschfeld (2004) have been challenged by Rhodes and Gelman (2009), who argued that although empirical evidence shows that children manifest a biological understanding of physical appearance, they do not show a corresponding understanding of social significance of races. Rather, race appears to be seen by children as a changeable category based on personal views (Rhodes & Gelman, 2009).

This section aimed at defining the purposes for essentialism to come into being. On this argument, Medin's (1989) position is to compare essentialism to an *essentialist heuristic* (Medin, 1989; p. 1477) that leads people into attributing internal similarities to entities that look-alike. Although this mechanism proves to be accurate most of the time, some authors (e.g., Gelman, 2003) suggested

that when individuals learn about the inner features that lead to category membership, the acquired knowledge becomes more important than what is observed. Also, in situations where some inconsistent information is provided, children tend to produce explanations based on internal and underlying properties, thus preferring functional mechanisms over perceptual ones (Legare, Gelman, & Wellman, 2010).

Hood (2009) carried out some studies about the power exerted by the theories about the world that an individual learns. According to Hood (2009), theories make our mental representation of things more rigid and fixed even when they are proven wrong. For instance, children and adults that have learnt the theory of gravity in balancing a rod would find difficult to solve a task where the rod has been secretly weighted on one side by the investigator.

Despite balancing the rod in the middle proving unsuccessful, older children cannot abandon their theory and so fail in the task, whereas younger children are more flexible and solve the problem through subsequent attempts (Karmiloff-Smith & Inhelder, 1975). Psychological essentialism can also be seen as a mental representation of the world: human reasoning is rooted in essentialist beliefs regardless of their veracity and is impregnated with them (Medin, 1989).

Medin observed that "people act as if things (e.g., objects) have essences or underlying natures that make them the thing that they are" (Medin, 1989; p.1476). However, he specifies, his claim is far from saying that things have essences, but that essentialism rather constitutes the way individuals see and understand the world. Under this perspective, if psychological essentialism is far less accurate than scientific theories, it still represents a successful way of understanding categories (Medin, 1989). Some studies (e.g., Blok et al., 2005;

Rips et al., 2006) showed that individuals are unlikely to change their view about the attribution of essences to objects despite the changes the objects had gone through had made them more suitable for fitting into different categories.

Discussion about the functions and contexts of essentialism has highlighted some important aspects that need to be addressed. In particular, the views of considering it as deeply connected with human reasoning (e.g., Medin, 1989) and as intrinsic to categorisation (Gelman, 2003) introduce us to the next section, which talks about categorisation -- the study of people's understanding of reality.

1.6. Categorisation

The purpose of this section is to introduce the reader to some basic principles about categorisation. Within the field of psychology theorists have dealt with the way human beings approach the world and understand it. The study of categorisation has produced some important theoretical approaches that are briefly summarised in this chapter and discussed in some separate sub-sections. They are the classical view, the prototype view, the exemplar view, and the knowledge view. A further theory is represented by the essentialist view, in which theorists propose that individuals approach the world in an essentialist fashion.

This field of psychology aims to identify the mechanisms that underlie human representation of the world and in particular the process that makes an entity be classified under one class rather than another, and that makes a novel object be understood. According to Lefebvre and Cohen (2005), cognition is categorisation: "all of our categories consist in ways we behave differently toward different kinds of things, whether it would be the things we do or don't

eat, mate with, or flee from, or the things that we describe, through our language, as prime numbers, affordances, absolute discriminables, or truths. And isn't that all that cognition is for -- and about?" (Lefebvre & Cohen, 2005; p. 42).

Categorisation processes serve two main purposes: they represent storage entities of accessible knowledge on the one side, and connect past knowledge to future experiences on the other side. This process is fundamental for decision making (Gelman & Meyer, 2011).

There seems to be no such thing as a single definition for concepts and categories, and in the literature there is little agreement in defining the problem. For instance, whereas for some researchers categories represent the core problem, for some others the process of categorisation is more relevant (Lefebvre & Cohen, 2005). Therefore, in this section some of the definitions that best contribute to the understanding of the subject will be outlined.

Categories are classes of entities of various nature that are classified together -- e.g., categories of people, of artefacts, and of actions -- because they share some sorts of similarity. They are the extension of our concepts or word meanings and represent the set of all things to which the concept refers. Concepts are the product of human intelligence in making sense of what is observed in the reality, they account for the *intensional aspects* of the link between concepts and categories (Hampton & Dubois, 1993; p. 3).

According to Hampton and Dubois (1993), intension consists in the information on which the classification of entities is based and the deductions that it generates. It only includes factors that are applicable to all the members of a category, although this is not true in the case of prototype concepts. Murphy defines concepts as "the glue that holds our mental world together" (Murphy,

2002; p. 1), and Medin sees them as "the building blocks for thoughts" (Medin, 1989; p. 1496). Other authors argued that "concepts are complex data bases and they allow us to represent, predict, and interact with the world" (Lefebvre & Cohen, 2005; p.9).

A more extensive definition of concepts was given by Hampton (1999): "Concepts are the elements from which propositional thought is constructed, thus providing a means of understanding the world, concepts are used to interpret our current experience by classifying it as being of a particular kind, and hence relating it to prior knowledge" (Hampton, 1999; p. 176).

Moreover, concepts can be simply called "thoughts", or "ideas of", individuals or entities. When we think about individuals, for instance, we have in mind a unique description for them that can summarise their identity, and yet there are countless ways of describing the same individual that are all representative of reality (Lefebvre & Cohen, 2005). This opinion is supported by Blok et al. (2005) who argued that when people categorise things that are relevant to them they do not only represent the categories these entities belong to, but also see them as individual things. The importance of individual concepts was highlighted by Medin and Shaffer (1978) in their Context Model, where they argued that knowledge of categories is yielded by our memories of their exemplars.

A different perspective, called *sortalism*, asserts that category membership determines an individual's identity by defining the criteria for identity (Blok et al., 2005). By definition, a sortal is a basic level noun providing principles of both identity and individuation (Xu, 2007).

Categorisation consists in organising things into categories in order to

understand what they are, and to differentiate them from other things. Through this process entities can be grouped into classes where a relationship between the entity and its class is highlighted, and where relationships between classes have taxonomic purposes (Schulz, Stenzhorn, & Boeker, 2008). Some agreement is reached in relation to the function of concepts. Smith and Medin (1981) claimed that without concepts chaos would reign in our mental representation of things. In fact, concepts are believed to produce stability by ordering entities into classes, and by allowing inferences about underlying attributes proceeding from the visible ones to the invisible ones. Concepts are thought of as "critical for perceiving, remembering, talking, and thinking about objects and events in the world" (Smith & Medin, 1981; p. 1).

1.7. Main theories of categorisation

This section goes through some of the dominant positions in the field of categorisation that have developed through the years. An outline of these positions will provide some understanding about the differences between the classical, prototype, knowledge, and exemplar views, and the essentialist view of categorisation.

1.7.1. The classical view

The classical view of concepts is the oldest theory in categorisation and can be tracked down to Aristotle in the western culture, and to Hull (1920) in Experimental Psychology. According to this view, concepts are present at a cognitive level as definitions. Definitions of concepts must have two criteria: they should have necessary characteristics for the entity to be included in the category, and they should provide sufficient characteristics in order for the same

entity to be included in the category. As defining criteria the classical view excludes the option of borderline cases, therefore certain characteristics are clear-cut for either being a member or for being a non-member of a certain category.

Murphy (2002) argued that one of the main failures of the classical view was the inability to explain typicality and atypicality of certain category members. In this respect, the typical members are thought of as the good examples of a given category, whereas the atypical members present as the more unusual ones (Murphy, 2002). According to the classical view, all the members that have the necessary features that make them suitable for category membership are included; however, under this account, deviations from the standard are not explained. According to Rosch (1975), the agreement around typicality is very high amongst people (she found it to be is as high as .97).

However, Barsalou (1987) pointed out that the measure obtained by Rosch (1975) was not meaningful because it depended on sample size, and showed that the average correlation between two random individuals would be a better measure, and that it is around 0.8.

It has been observed that typical members of a category -- e.g., robins rather than chickens -- are recognised more easily and faster (Murphy, 2002), and also that typical members are the first ones to be recalled in memory tasks and to be learnt as category members (Mervis, Catlin, & Rosch, 1976). Some further research showed that when people make reference to two category members, the most typical one is usually cited first (Kelly, Bock, & Keil, 1986) and usually acts as a benchmark (Murphy, 2002).

Hampton (1988; 1995) investigated typicality in judgements about

category membership, and his findings challenged the classical view. For example, he found that people perceive entities as part of a joint category (X and Y) even if they only fulfil either component x or y (Hampton, 1988). As he suggested, this could be a problem with transitivity of category relations, since in some cases subjects would recognise entities to be members of sub-categories but not of the higher category. Typicality is described by Murphy (2002) as a matter of degrees, and its items can be very similar to the prototype (very typical), moderately similar (typical), not similar (atypical), or sit in between two different categories (borderline). Therefore, typical entities are those that own many traits of the category and very few of other categories and that are easily recognised as category members (Rosch & Mervis, 1975).

A relevant study on typicality in natural categories was run by Barsalou (1985) in order to explore what determines graded structure in categories. The term graded structure refers to the fact that some members of a category are more typical than others, and typicality of members can be represented as a continuum from more typical to less typical. In Barsalou's (1985) study, three variables were tested on common taxonomic and goal-derived categories: a) central tendency (already called family resemblance by Rosch & Mervis, 1975), which means that items with the highest similarity to other category members scored higher in central tendency; b) frequency of instantiation, which refers to the frequency for an entity to be rated as a category member; and c) ideals, which is the compliance with the primary goal of the assigned category.

Barsalou (1985) found that central tendency predicted graded structure in taxonomic but not in goal-derived categories, and that central tendency and ideals may determine graded structure in both. He also argued that the ability of

people to construct concepts is dynamic and varies in different contexts.

It has been argued that one of the main problems with the classical view was the failure to explain typicality, and therefore this issue has been given priority by subsequent theories (Murphy, 2002). Typicality is what leads judgements about category membership (Rosch, 1978), and prototype similarity taps into both the goodness of an individual/animal/object as an example of that category, and the fact that the target individual/animal/object belongs to that category and not to another one (Hampton, 1995). Accordingly, the relationship between the typicality of an entity and the clarity of category membership is quite straightforward (Hampton, 1998) (for a detailed explanation of the relationship between typicality and category membership see Hampton, 2007).

Under this view, when an entity's resemblance with the features for the category decreases, the chances for it to be regarded as a category member also decrease. However, since category boundaries can be unclear, this judgement could differ greatly amongst perceivers (Hampton, 1995). Hampton's (1995; 1998) claim of a strong relation between typicality and category membership was also confirmed by Diesendruck and Gelman (1999), with the distinction of a stronger attribution of category membership to animals (relatively absolute category membership) than to artefacts (relatively graded category membership).

1.7.2. The prototype view

One of the most important criticisms of the classical view was formulated by Rosch (1975) under her theory called the prototype view -- or the probabilistic view. One of the key concepts of the prototype view is the concept of summary representation which states that an entity, for example a dog, should present with sufficient canine characteristics in order for it to be called a dog, but

none of these characteristics would be defining. The typicality problem that undermined the classical view was attempted to be solved by the prototype theory through the idea that the most typical items will present with the more highly weighted traits of the assigned category, whereas the most atypical items will present with fewer highly weighted traits.

However, the prototype view has been criticised for a lack of precision in the definition of prototype, which is often mistaken by researchers as a single best exemplar rather than as a list of properties.

1.7.3. The exemplar view

The exemplar view was elaborated by Medin and Shaffer (1978) and greatly differentiates from previous accounts. In fact, rather than mentioning a single concept in which the understanding of an entity is included, or rather than providing a list of features for the entity, this view refers to the fact that an individual's memory of previous experience of that entity works as a filter in the understanding of the new entity. For instance, when we see a dog we match it with our previous experiences of dogs and differentiate it from animals that look alike it (e.g., foxes) thanks to the ability we have to recall more similarities with the dogs that we have previously come across with, rather than with foxes (Murphy, 2002). Under this account, typicality occurs when an entity presents as very similar to known previous examples of the same category, whereas atypicality occurs when an entity presents as very dissimilar to known previous examples. By definition, an exemplar is a good example of a certain entity.

According to Diesendruck and Gelman (1999), prototype models seem to represent the most adequate models for the categorisation of artefacts. Empirical results show how as the typicality of the items decrease, also the absolute

categorisation of artefacts drops down. On the contrary, low typical items are attributed negative categorisation (Diesendruck & Gelman, 1999).

1.7.4. The knowledge view

The knowledge approach, also called the *theory view* or the *theory theory view*, was elaborated in response to the loose ends left by the previous two approaches: the prototype view and the exemplar view. Its main theorists have been Murphy and Medin (1985) in the context of the psychology of categorisation, and Carey (1985) in the developmental psychology context. The knowledge approach suggests that concept making is a process that is deeply related to the knowledge of the world that individuals have, and that the relationship between concepts and knowledge is always bidirectional (Murphy & Medin, 1985). Under this approach, it is thought that the knowledge that concepts possess allows them to provide explanations of the world.

The structure of concepts is organised by domains, and within the same domain the nature of the knowledge is similar. For instance, the principle that lions roar contain some "nomological, causal, functional, and/or generic knowledge" about lions (Machery, 2009; p. 101). On a similar account, Machery (2005) talks about the role played by concepts -- which he calls *default bodies of knowledge* (Machery, 2005; p. 449) -- in supplying the information required by a certain situation. Barsalou (1993) suggests that concepts are the product of the working memory and that they are sensitively provided under the requirements of contextual factors, whereas Prinz (2004) argue that they are stored in the long-term memory.

1.7.5. The essentialist view

The essentialist view brings a different approach in the theorisation of categorisation. Psychological essentialism was propounded by Medin (1989) as the bridge between observed properties and the theory-based view of categorisation, which asserts that concepts are represented as theories rather than feature lists. He suggested an alternative to similarity-based models, including the prototype model, by accentuating the role played by individuals' theories in the mental representation of concepts (Murphy & Medin, 1985). Medin's (1989) view, which can be defined as an essentialist account of categorisation, refers to lay-people's beliefs that categories have underlying properties -- or essences -- that determine their nature and general make-up. As Medin (1989) discussed, despite the fact that these properties -- or essences -- may remain unknown by people, they are thought to be there and to determine category membership.

Under this account, the differences in typicality amongst category members are contemplated. In fact, certain members may present different non-essential traits and be a worse example of a category than other members, or a less typical example (Diesendruck & Gelman, 1999). The essentialist view promotes an "absolute" categorisation, where entities are either members or not members of a category (Diesendruck & Gelman, 1999; p.339) in accordance to their essential properties. For instance, if an exemplar is attributed the essential properties of that category it would be fully rated as a category member.

On the contrary, if an exemplar is thought to lack the essential properties for category membership it would be rated as a non-member (Diesendruck & Gelman, 1999). Also, as Diesendruck and Gelman (1999) suggest, some categories may be more essentialised than others, as in the case of animals, to

which preschool children attributed more inductive inferences than to artefacts (Gelman & Markman, 1986), and to which also adults attributed more defining features than artefacts (Malt & Johnson, 1992).

This position was elaborated in a study from 1999 where Diesendruck and Gelman investigated the connection between the degree of typicality and category membership. They had forty-two subjects rating the typicality of category membership of a set of 293 animals and artefacts presenting a different degree of typicality. The aim of the experiment was to see if and how the attribution of animals and artefacts to categories differ, and whether animals would be judged as members of a category in an absolute fashion and independently of typicality. Their hypothesis wanted to challenge the prototype account, which suggested that in the presence of a similar grade of typicality the two domains (artefacts and animals) would be granted the same ratings.

The conceptual framework in which the study was conducted reflected an essentialist account of categorisation, according to which a decrease in typicality would also decrease the chances for absolute category membership. Thus, it was predicted that by decreasing typicality, absolute negative categorisation would increase as an effect. According to Diesendruck and Gelman (1999), the results showed that atypicality affects categorisation of animals more than categorisation of artefacts since non-typical animals were considered either members or not members of a given category. Previous studies had supported this position (see Barr & Caplan, 1987; Hampton, 1998). Particularly, Hampton (1998) observed that in the categorisation of animals the core properties are a better predictor of category membership, which is not different from what the essentialist position suggests.

Likewise, according to the essentialist account, category membership is granted when individuals, animals, or artefacts have some essential traits that make them suitable for that category. If these essential properties are missing the exemplar cannot be a member of that category, but if the properties are owned the exemplar is considered a full member of that category. Under this view there is no room for fuzziness as the conditions for category membership are either met or not. Empirical work has shown that when perceivers are uncertain about the core features of the target they tend to attribute negative membership in an absolute fashion (Diesendruck & Gelman, 1999).

In his work from 1995, Kalish pointed out the lack of empirical evidence in favour of the essentialist view. In fact, although previous work (see Gelman & Markman, 1986; Keil, 1989) showed that non-essential properties (e.g., external traits) are less relevant than internal properties in the perception of the essence of an entity, they are still taken into account by perceivers. Kalish (1995) tested category membership and typicality in three studies. Study 1 (N = 31) explored graded categorisation by asking participants to make judgements about typicality and category membership of low-typical entities (e.g., penguins for the category birds).

The results showed that changes in both superficial and deep traits influence the perception of typicality as well as category membership, and that differently from graded items, defined items were attributed a clear-cut membership. Study 2 (N = 20) tested typicality, membership, and relationship to a category of seven different items among which were animal and artefact kinds (e.g., how representative of the category horse is a donkey; how much a donkey is a member of the category horse).

The judgements of category membership appeared graded particularly for artefacts, but also for animals. Moreover, the results showed that category membership and typicality are affected by changes in both the outside and the inside. Since it was hypothesised that a certain extent of ambiguity of the items tested in study 1 and 2 may have led to graded responses, Kalish (1995) carried out a third study (N = 41) in which only animal kinds were tested. Animal categories are indicated in the literature as particularly prone to be attributed essences (see Keil, 1989). The participants were instructed to think about biological aspects in their judgements of the target items (e.g., biologically speaking a donkey is not at all typical of a horse). This study provided evidence for category membership to be graded even in the presence of biological categories, as participants did not perceive animal kinds as "all-or-none" categories (Kalish, 1995; p. 346).

Overall, the results from Kalish's (1995) work suggest that some artefact and animal kinds are thought not to have an essentialist structure. Although the results were obtained with a number of low-typical items, Kalish (1995) argued that they would also be replicated with more typical items. The investigation showed that the two concepts of category membership and typicality are profoundly linked, and that changes in external traits affect both. Therefore, Kalish's (1995) argument is that although essences remain the most important aspect for the evaluation of category membership they are not the only one, and that other features of an item may determine its category membership.

This section has provided some background knowledge about the position of the essentialist account of categorisation. The next section will discuss the role of the transformation paradigm as a test of psychological

essentialism.

1.8. The role of changes and mutation in essentialist beliefs

Psychological essentialism highlights a basic distinction between the inside and the outside, or between surface and inner features of animated and unanimated things (Medin & Ortony, 1989). Medin and Ortony (1989) advocate that between surface and inner features there is a close relationship and that sometimes surfaces depend on deep properties. This tenet represents the core concept of psychological essentialism. Starting from this concept, this section would like to discuss research investigating how changes in either external or internal features in both living and non-living entities may affect the perception of category membership. In the next paragraphs, a review of studies in relation to these changes and transformation will be discussed.

In psychological essentialism research, there are three commonly used paradigms that explore essentialist beliefs about social categories: the transformation paradigm -- used among others by Keil (1989) and Mahalingam (1998); the adoption paradigm -- used by Gelman & Wellman (1991), and Hirschfeld (1996); and the brain-transplant paradigm -- used by Johnson (1990), and Mahalingam (2001). In particular, the transformation paradigm investigates whether changes in the external or internal appearance of a living being affect the attribution of category membership of the same (Mahalingam, 2003).

As Keil (1989) argued, when older children are asked to categorise an animal, they rely on its origin rather than on its appearance. In one of his experiments, Keil (1989) used a scenario with a horse with painted stripes to make it look like a zebra. He observed that whereas four-year-old children think that external changes may determine categorization, older children do not accept

that painting stripes on a horse would turn it into a zebra. Thus, Keil (1989) argued that older children understand that a change in appearance cannot change a creature's kind. On the other hand, beliefs about artefacts were observed to be opposite to those about natural kinds so a coffee pot can be turned into a bird feeder by external actions changing its appearance. Another interesting point is the one about "discoveries" which shows that older children believe that scientists can discover something about a creature's insides which lead to it being categorized differently.

Rips (1989) argues that similarity between an entity and other entities in the same category is seen by some theorists (e.g., Rosch, 1975) as a necessary condition for such entity to be included in the category (1989). According to Rips (1989), this way of categorising is simple and involves representing a category and an object in somebody's perception, and calculating similarity between the two. This process can be applied to all categories and objects, and it will produce different similarity rates.

However, as Rips (1989) claims, some criticism in relation to the role of similarity in categorisation has risen in both philosophical and psychological debates (see Goodman, 1970, in relation to philosophical accounts; and Murphy and Medin, 1985, in relation to psychological accounts). Rips (1989) showed that sometimes category membership and similarity are separate from each other and that they may respond differently to similar factors. Particularly, according to Murphy and Medin (1985), an object's classification responds to the procedures applied to scientific classification with the difference that -- when it comes to classifying an object -- lay people are less accurate than scientists.

Accordingly, Rips (1989) claims that similarity and categorisation

represent two separate processes. In his work, Rips (1989) investigated whether similarity and categorisation are different by using the transformation paradigm to investigate different categories that are commonly known to people (e.g., quarters, temperatures, or eggs). In the first study, he used a number of problems presenting pairs of categories tapping different dimensions. In each pair, one category was fixed and the other one was more variable. In a further study, Rips (1989) queried participants about a number of problems in which they had to rate likelihood, similarity, and typicality (e.g., temperature). In both studies, Rips (1989) observed that similarity can be dissociated from categorisation, and that categorisation is around the midpoint on the scale. Rips (1989) argued that similarity seems to depend on how close entities are to the core features of the category, and that typicality is perceived on the basis of both categorisation and similarity.

In order to explore so, Rips (1989) designed two studies focusing in natural kinds on one study, and on artefacts on the other one. In the first scenario, an imaginary animal that could be categorised either as a fish, reptile, insect, mammal, or bird went through a particular event that made it look more similar to that of a different category. Another scenario described mutation as a result of natural processes (e.g., a caterpillar turning into a butterfly). The results showed that the mutated creature was judged more similar to the new appearance category but more likely to be categorized in the pre-mutation category. On the other hand, when the change was a natural mutation, people judged the early form to be more similar to the category it resembled, but then categorized it as belonging to the category of the adult form. The same results were observed in the artefact scenario but with a slightly smaller effect. Thus, findings suggest that

similarity can be dissociated from categorization.

Hampton et al (2007) noticed that the categorization responses in Rips (1989) data were not clearly in favour of one category, but were close to the midpoint of the scale. Thus, they decided to explore this further in a series of studies that would test the robustness of Rips' (1989) claims. The first study was a replication of Rips (1989) with some changes: 1) since Rips (1989) showed very similar results for similarity and typicality, the former one was omitted in order to focus on typicality and categorisation ratings; 2) labels of the different stages of a creature were not given; 3) the full story was read by all participants, but the first half of the story was rated by half participants, and the second half story by the other half of participants.

Hampton et al. (2007) focused on two core aspects of essentialism: an entity's offspring and the belief that inner make up cannot change through external action. The study tested 32 participants on 16 different scenarios describing an animal that presents behavioural and external characteristics of another animal. All 16 scenarios gave a description of the animal's appearance and behaviour, occurrence of change through either mutation or maturation, details about the change and its effect on both behaviour and appearance, and the fact that the offspring reflected the animal in its former stage.

The results showed that typicality changed consistently, and that also categorisation shifted in each change. The data contained systematic individual differences, with one group of participants responding as Rips (1989) had suggested, and another group doing the opposite and judging the category on the basis of the creature's changed appearance rather than on its original essence. One group, labelled as "phenomenalists", thought that both mutation and

maturation determine changes in category membership. The other group, labelled "essentialists" thought that accidental mutation did not change categorisation of the creature.

The group of essentialists did not see mutation as a cause for an entity to change category, and their judgements reflected three different types of beliefs: both the early and late stage in an entity's life are part of the same category (Rips essentialists); an entity's offspring is what determines category membership (origin essentialists), if external features change (e.g., maturation), category membership may also change (nominal essentialists). To conclude, Hampton et al. (2007) showed that there are distinct individual differences in people's beliefs. Also, people are more likely to think that contamination changes the category of the creature than to present the pattern claimed by Rips (1989). Hampton et al. (2007) argued that their work showed how people adopted the causal homeostasis theory and inferred that if the appearance had changed through internal processes, then also deeper internal properties that determine categorization would have changed.

What was interesting in these studies is how the transformation paradigm can represent a test of psychological essentialism and generate different perspectives on essentialism itself. For instance, Hampton et al. (2007) observed that what they called "origin essentialists" seemed to refer to the former reality of a creature, and particularly to the juvenile stage of that same creature. On the other hand, what were called "Rips essentialists" referred to the cause of change and considered change as a superficial matter concerned with an entity's appearance rather than with an entity's internal make up.

This section discussed research on the transformation paradigm and its

role as a test of psychological essentialism. The next chapter will explain how psychological essentialism develops in individuals from infanthood throughout adulthood, and the different contexts where essentialism occurs.

Chapter 2:

Psychological essentialism: A literature review

2.1. Introduction

Psychological essentialism has become a broadly studied subject in the past fifteen years, and has been attributed great relevance in the understanding of the basic mechanisms of human cognition through the lifespan. For this reason, its investigation has seen a great involvement of the most different psychological fields, going from the work carried out in essentialist representation in infants and children within the domain of Developmental Psychology (e.g., Bloom, 2000; Gelman, 2003; Newman & Keil, 2008), to theories of social representation and beliefs towards the ingroup and the outgroup in Social Psychology (e.g., Hamilton & Sherman, 1996; Haslam et al., 2002; Keller, 2005; Leyens et al., 2000; Yzerbyt, Judd, & Corneille, 2004), and to the study of the phenomenon of humanisation and dehumanisation (e.g., Demoulin et al., 2009; Leyens et al., 2003; Haslam, 2006), just to mention some. The aim of this chapter is to provide a brief introduction to these areas of investigation, along with an overview of some of the most relevant studies for each of these areas.

The second section will delineate the main current positions in the literature about the onset of essentialism in children, and the occurrence of developmental shifts in essentialist beliefs. Also, given the role that they play in children's essentialism, the concepts of induction and innate potential will be explained. Studies about developmental shifts in children's essentialist thinking are discussed in the second part of that section. Numerous are the positions about the onset of essentialism in children, ranging from those that support cultural inheritance (e.g., Fodor, 1998), genetic dispositions (e.g., Carey, 1996), or parental teaching through the use of language (e.g., Gelman, 2003). These positions will be summarised in two separate sub-sections. Work on essentialism

in children has been very influential in the field. Thus, the inclusion of this material in the thesis should provide some insightful information for the understanding of essentialism in adults.

The third section deals with the understanding of how essentialist beliefs are organised and whether they can be defined through some particular measure and organised in a specific pattern or structure. This section presents some relevant evidence that constitutes the theoretical background for the first hypothesis of Study 1 and 2 of this thesis, which explored the structure of essentialist beliefs.

The fourth section discusses the phenomenon of humanisation and introduces some studies that contributed to its understanding. Through the material presented in this paragraph the reader will be able to appreciate the mechanism that underlies individuals' beliefs about one's own essences and somebody else's essences. This mechanism has been addressed by Study 1 and 2 in relation to beliefs about one's own versus others-categories with the hypothesis that one's own categories would be judged as more essentialist than others-categories.

The fifth section talks about social categorisation, which is the phenomenon concerned with how people see others. In particular, the section focuses on explaining social categorisation and its relevance in psychological essentialism. Research in social categorisation has highlighted some links with the attribution of an essentialist nature to both individuals and categories, and the onset of prejudice.

Finally, section 2.6 debates the occurrence of cultural differences in cognitive styles. In the section, some studies providing support about the

occurrence of such differences are discussed and organised in four sub-sections. This material will aid the understanding of the conceptual framework underpinning the cross-cultural investigations run for Study 1 and 2.

2.2. Essentialist beliefs in early life

One of the main sources of interest for psychological essentialism is the study of the early essentialist mechanisms in individuals, and particularly essentialist thinking and representation in infants and children. This area has been explored over two decades with some remarkable discoveries that have overturned some of the classic theories of Developmental Psychology. Amongst the main investigators in the field are Gelman (2003), Newman and Keil (2008), Bloom (2000), and Hirschfeld (1996). These authors have queried the origins and functions of essentialism in human thought by posing some preliminary questions: Does essentialism originate in culture? Is it influenced by language? Is it present at birth? Is it to be found in the reality of the world?

According to the literature, essentialism is both a childhood disposition that has to do with the make-up of human minds (Gelman, 2003), and a basic human bias (Gelman, 2009a). In her work Gelman (2003) argues that when it comes to explaining an entity's specificity, young children appeal to underlying properties and consider these responsible for identity and category membership. This ability does not seem to be taught by parents, whose explanation of the world was proven to give little explicit essentialist information (Gelman et al., 1998; Gelman et al., 2004). In the debate around the onset of essentialism, Gelman (2004) supports the view that essentialism is the base from which understanding of the world develops, and that it does not require scientific knowledge to come into being.

For example, children know that there are some profound differences between girls and boys that go beyond the colour of their clothes, even though they do not know what those differences are or what they are caused by. Particularly, for gender differences it has been observed that young children can be especially "nativist" and that children aged four refer to innate biological differences (Gelman, 2004).

The nature of children's beliefs was first investigated through the use of inductive inferences by Carey (1985) who provided children as young as four with some new piece of information about certain categories. Induction is defined as the capacity to extend knowledge to new situations, and is thought to be one of the main functions of categorisation (Medin et al., 2003). The purpose of Carey's (1985) investigation was to see whether the new knowledge would generalise to different categories within the domain of biological understanding, and was carried out as part of a broader investigation on conceptual changes about biological entities in children. The findings showed that children had the tendency to make more inferences about properties related to people than properties related to animals, and that they attributed properties related to people to categories of animals.

Also, Carey (1985) found that children are more likely to project attributes typical of human beings to animals than to attribute traits typical of animals to humans. Moreover, in her experiment about the patterns of attribution of biological properties in children and adults, Carey (1985) observed that the basic functions of an organism (e.g., growth, respiration, and death) are central to the understanding of biological entities in adult subjects. However, in four-year-old children their poor knowledge of biological mechanisms is reflected in the

way they understand biological kinds. For example, to the question “does an x breathe?” (Carey, 1985; p. 10) a four-year-old child would answer that individuals breathe, and would generalise this to the target entity on the basis of the commonalities it bears with people. Although this question may trigger a different model of information-processing in adults, they are also likely to make wrong inferences sometimes, which are caused by a lack of scientific knowledge. However, the results showed that the inductive projections individuals make are generally driven by deep biological properties rather than by perceptual similarities (Carey, 1985).

Gelman (2004) ran some further investigation to explore the mechanism of induction. She observed that induction is present in adults as well as young children and that it comes into play when attempting to deduce the external features of category members from non-visible internal traits. Accordingly, its role is to favour category membership over perceptual similarities and a perception of category membership as stable despite observable external transformations (Gelman & Wellman, 1991). The concept of induction is linked to the concept of “innate potential”, which claims that traits are determined at birth (Gelman & Wellman, 1991). Although it is not clear when this belief appears in life, whether at six years of age (Solomon, 2002) or at four years (Gelman, 2003), it seems that children can be more “nativist” than adults and would believe, for example, that a child adopted at birth would speak the language of his biological parents rather than the language of his adoptive parents (Hirschfeld & Gelman, 1997).

As highlighted by some authors (e.g., Gelman & Opfer, 2002), an important aspect to consider in the fact that children tend to attribute essences

almost exclusively to animal kinds, is the concept of "animacy" (Gelman & Opfer, 2002). According to Keil (1989), animacy represents understanding of the main features and functioning mechanisms of an entity. Also, it represents understanding of the distinction between different kinds (e.g., between animate and inanimate ones) (Gelman, 1990). In tasks about the changes in identity of animals and artefacts across transformations of the outsides, for example, preschool and older children considered that an animal can turn into another animal, and that an artefact can change into one other, but changes from artefact to animal and vice versa were not considered (Keil, 1989).

According to further research (see Keil, 1994), by the age of four children acknowledge that there are processes that are typical of living kinds but not of non-living kinds. Amongst these processes are physical growth, reproduction, and metamorphosis. In the judgment of animacy it seems that both outer appearances and the ability to produce movement (e.g., faces) are relevant (Gelman & Opfer, 2002). Barret (2001) agrees with this position and suggests that the human ability to categorise seems to be particularly receptive to some perceptual cues that come from the environment, such as motion and surface features.

In a study about children's essentialist beliefs about animal species and gender categories, Taylor, Rhodes, and Gelman (2009) used the switch-at-birth task, which consists in telling children a story about a baby who is born by parents of a given species and then raised by adoptive parents from a different species. The questions involve asking whether the baby will show the traits typical of his biological parents or the traits typical of his adoptive parents. The study tested two groups of children (group 1, age M = 4.11; group 2, age M =

9.11; N = 160). Four stories were presented in the experiment (e.g., one of them was about a baby cow raised by a pig family), and for each story pictures of the target animal and of the adoptive family were shown. In the picture of the baby animal, only a few features of the adult animal were shown, and the questions asked about some adult features that were not shown in the task (e.g., when the baby cow has grown up, what does it say? Does it say moo -- category-based beliefs -- or oink -- environment-based beliefs --?).

The task investigating gender categories, on the other hand, presented a story where a baby girl moved to an island inhabited by males only. Photos of the baby, of the island's inhabitants, and of the island, were shown. The photo of the baby did not present any gender-typical features, and the questions asked participants about what the baby girl would like to do when she grows up (e.g., when the baby girl is a big kid, what does she like to do? Does she like to sew -- category-based beliefs -- or does she like to build things -- environment-based beliefs--?).

The results showed that participants from all group ages attribute physical development to biological causes (category-specific). In fact, all participants agreed that a baby cow will grow into an adult cow. On the other hand, beliefs about the influence of environmental factors were higher in the task investigating gender differences. Also, some differences were observed in the category-based predictions about behavioural properties, which decreased with age. Generally, it was shown that traits observed at birth are considered to be likely to characterise the makeup of both animal and human categories (Taylor, Rhodes, & Gelman, 2009).

The main trend for authors in the development of essentialist thought is

to suggest that a basic grasp of the difference between reality and appearance is required (Carey, 1996; Fodor, 1998; Bloom, 2000; Gelman, 2003). The meta-cognitive understanding of this distinction seems to be achieved at the age of four (Flavell, Flavell, & Green, 1983), although a rudimentary discernment is observed from the age of two (Gelman, 2003). On the other hand, Carey (1996) suggests that this ability may be innate and that when children look at creatures in order to make sense of them, they are most likely to be strengthening their essentialist abilities which then become more effective over time. Under this perspective, it seems that some developmental shifts occur in children's beliefs about internal features, and that adults and children may have different views (Newman & Keil, 2008). By the term developmental shifts I intend the changes that occur across development. In this specific case, however, the focus is on the conceptual changes that occur when some new piece of information replaces and integrates the previous material.

In a study from 2008, Newman and Keil wanted to investigate where people think the essences of an entity are located, and whether some changes in beliefs occur through development. The study involved reading a brief story about substances, big animals, and small animals and choosing between a distributed statement (It doesn't matter where they take the pieces from, any piece will be able to tell them what kind of animal it is), and a localised statement (There is only one special piece that will tell them what kind of animal it is). A sample of adults and children were tested, and the stories and questions were slightly changed and simplified for the group of children. The sample of adults included college undergraduates, whereas the sample of children was composed of children from three age groups (group 1, age M = 6.0; group 2, age

M = 8.1; group 3, age M = 10.2).

One of the differences between the group of children and adults was that children do not normally learn about biological microstructures like DNA at elementary school, and even if they have been exposed to this concept before, their knowledge should be rather superficial. What was observed was that adults showed a greater extent of generalised beliefs, but also that they were more likely to think that internal essences are more localised in animals than they are in objects. On the contrary, the findings from the groups of children showed that the two groups of older children tended to have a more distributed view, but that this -- similarly to the group of adults -- occurred especially for substances rather than for animals. On the other hand, the group of younger children showed preferences in choosing the localised view for small animals but did not show differences in the case of big animals and substances.

Newman and Keil (2008) observed that, although the explanations given by the participants were not scientifically accurate, they clearly reflected beliefs in the accountability of biological mechanisms for the make-up of biological entities. These findings contrast with Piaget's theories about a lack of understanding of causality in preschoolers, whose explanations of causality reflected some confusion between psychological, biological, and sometimes even magical agents. A previous study by Springer and Keil (1989) highlighted the ability of preschoolers to understand that biological functions are likely to be passed on to the offspring, whereas other functions were seen as irrelevant. Also, a cognitive shift in these beliefs was found in the age group of 4-7-year-old, and in older children.

In a set of studies from 1991, Springer and Keil investigated early

understanding of causal mechanisms in biological and non-biological kinds in preschoolers. Considering that previous studies had already highlighted an early ability in children to differentiate between natural kind and artefact features (Gelman, 1988; Keil 1989), Springer and Keil (1991) wanted to focus on the ability to understand causal mechanisms that produce changes in both biological and non-biological entities. Since they wanted to focus on easily observable features, their study investigated beliefs about the transmission of pigment in flowers (non-animated biological entities), dogs (animated biological entities), and cans (artefacts). The study revealed that adult participants believed in a genetic explanation, and that the main trend for children was the belief that baby flowers get their pigment through little pieces given by their mothers, whereas a mechanical agent was widely considered responsible for the pigmentation of artefacts.

2.2.1. Role of parental teaching and cultural exposure in children's essentialist beliefs

One of the most obvious hypotheses concerning the origin of essentialism is that it comes from cultural exposure through teachings, tales, and normal daily conversations with social partners. However, empirical research does not support this over-simplification, and illustrates how individuals from different cultures essentialise in surprisingly similar ways across very different cultural contexts. On the other hand there is also evidence that the degree to which cultures essentialise might vary greatly.

For example, research by Bloch, Solomon, and Carey (2001) conducted on a sample of 7 adults and 25 unschooled children between the age of seven and fifteen years in a rural mountain village in Madagascar, showed discrepancies

with previous studies run in western countries. The research was conducted in the local Malagasy dialect by one of the investigators who used a variation of the Solomon et al. (1996) adoption task, in which participants were told a story about a child raised by a couple of adoptive parents. The results showed that both age groups believed that an adopted boy would look like his adoptive parents rather than his birth parents on the majority of the traits including physical appearances. On the other hand, other studies have found interesting similarities between western cultures, and the Brazilian (Diesendruck, 2001) and Mongolian culture (Gil-White, 2001).

Within the context of these sometimes controversial findings, one of the main aspects that authors like Gelman aimed to investigate was the extent to which social interaction and cultural exposure influence essentialist thinking. Gelman et al. (1998) argued that very little essentialist input is given by parents in their explanation of the world to children, and that essentialist theories seem to make a spontaneous appearance early in childhood (Gelman, 2003). Her view is clearly opposite to the more old-fashioned view that described children as empiricist and therefore more interested in superficial and perceptual aspects than inner ones, and lacking the ability to form categories (Inhelder & Piaget, 1964). These views clearly contrast with Fodor's (1998) position, which proposed essentialism as a consequence of the circulation of scientific knowledge about biological microstructures.

However, the studies carried out in infants and children (Gelman, 2003; Gelman, 2004; Gelman & Wellman, 1991) seem to confirm the position that if essentialism had required some scientific knowledge in order to come into play, it would not be observable in preschool children. The same position is taken by

Medin and Ortony (1989) who propounded essentialism as a place-holder concept: people think that there is something defining the general make up of entities without knowing what it is, and base their inferences on that. This view implies that categories have sharp boundaries, underlying realities, and that their members share deep similarities (Gelman, 2004).

Gelman (2003) argued that children up to the age of four go through some major changes in the way their essentialist thought is organised. She introduced the idea that a step-by-step process occurs in the pre-verbal stage in children, making them notice the complex make-up of certain categories, later attributing some intrinsic hidden qualities to them, and finally linking the same categories with names through the use of language. Eventually, the process becomes automated thanks to the exposure to an increasing number of categories.

At the same time, social exposure provides a shared knowledge for the attribution of essences. This view fits well with the findings that children -- as well as adults -- think that language is related to the architecture of the world (Gelman, 2003), and is also shared by Hampton (2010), who highlighted the fundamental role that concepts play for human beings at conveying communication between social partners. In fact, a large extent of the concepts we use derive from our culture, although sometimes in the daily use of words lay-people's classification is preferred to scientific classification (for example, the scientific and the culinary use of the word "fruit" do not correspond very closely) (Hampton, 2010).

2.2.2. The influence of language on essentialism

This section discusses an aspect of cultural exposure that is considered to

be especially relevant in the onset of essentialism: language. In particular, the role of names (or labels) and generics is evaluated on the basis of some relevant theories about essentialist beliefs in children. The term “generics” is explained, and the role they play in essentialism clarified. Also, a general discussion of why authors argue about a close connection between the use of language and essentialist assumptions is provided. According to Gelman (2003), language is a powerful instrument for communicating cultural explanations of the world, and for providing a structure to people’s categories. Likewise, some authors argued about the importance of generics in essentialism in relation to their ability to express the essential qualities of category members (Gelman & Meyer, 2011).

Some studies have highlighted the fact that the relationship between linguistic and conceptual representation starts even before language becomes available. Particularly, work conducted on infants as young as nine months of age showed that infants can learn categories before they learn to talk (Balaban & Waxman, 1997). Recently, the linguistic relativist hypothesis acquired new supporters in arguing that people's thought is shaped by their language (Gentner & Goldin-Meadow, 2003).

Empirical studies show how young children essentialise categories before being taught scientific rules (Gelman & Coley, 1990), and despite the very little verbal input on essentialism provided by parents in their interaction with children (Gelman, 2003). Also, more recent positions argue that pre-lingual children group objects together on the basis of their labels (Fulkerson & Waxman, 2007), and that this occurs in two steps: on the one hand children learn to treat different entities under the same label as similar to each other, and on the other hand they produce inferences on hidden commonalities for the named-alike

entities (Gelman, 2009b).

Language provides an efficacious way of expressing two important pieces of information: while words express membership in a category, generics express the range of the category. For clarity, generics are sentences that make reference to either the whole category or to individuals that best represent the category, and that express essential qualities (Carlson & Pelletier, 1995). They are also what mothers use to help their children to make sense of the world, and it has been observed that in their conversations with their children mothers produce about 30 generics per hour on average (Gelman, 2003). In fact, they provide the information that a certain quality is typical of a kind even though it could be not universally found in all the category members (Gelman & Meyer, 2011).

Gelman (2003) argues that in order for generics to impact essentialism in children they must be provided in the verbal interaction between adults and children and be easy to understand, and must reflect the conceptual distinction between categories. It was observed that generics are also used in other languages like Mandarin, and that there are similar patterns in the way they are used as they are generated more to refer to animals and to animate domains than to objects or other domains (Gelman & Tardif, 1998). A study investigating whether generics are also used by children was carried out by Gelman (2003), showing that children make a similar use of generics as adults do, that they generate generics from the age of two with their use increasing with age, and that they are more common than non-generics terms.

The common view among theorist is that names play a powerful role in conveying meaning and underlying essentialist tendencies (Clark, Gelman, &

Lane, 1985; Gelman, 2003). Mayr (1991) suggested that despite the great diversity observed within the same category of objects, names are essential accounts for defining classes of objects. Names might ease the perception, even in young children, that the real meaning and essence of things is being grasped (Piaget, 1929). Labels and names seem to represent a guide through the perceptual differences of objects that reaches for category similarities (Gelman & Meyer, 2011). A similar position is held by Carey (1995), who argued that the root of beliefs in essences is to be found in category labels. As an example, the impact of the medical terms indicating mental and physical illnesses could be mentioned.

These terms can have an even more powerful impact when combined with certain verbs (e.g., "is") rather than others (e.g., "has"). In fact, the statement "this child is autistic" seems to refer to a deep and permanent state which implies that the whole personality is affected. On the other hand, the statement "this child has autism" seems to indicate that autism is not the main feature for that child, but rather that it is one of the features that determine her/his personality, suggesting a more temporary state as in "this child has a cold" (Gelman, 2003).

Language represents one of the primary vehicles for communicating category membership but whereas in the old days it was thought that names captured the essences of things (see Aarsleff, 1983), in contemporary psychology a different perspective is taken. Mayr (1991) talked about the misleading belief that lay-people have about single words containing and describing the diversity of a whole category (e.g., the word mountain refers to mountains that are profoundly different one from another), thus reflecting an underlying sameness.

The same concept was also described by Piaget (1929), who suggested that when children learn what things are called may believe that they are finally grasping their core properties.

A study by Clark, Gelman, and Lane (1985) captured how -- as early as pre-school age -- children use nouns to refer to stable and congenital traits and adjectives to express temporary conditions. However, it was later demonstrated that also some adjectives -- e.g., "shy" and "smart" -- convey category membership (Heyman & Gelman, 2000). A similar study with an adult sample showed that individuals attribute names a greater ability to express the identity of a kind than adjectives (Markman, 1989). In support of this view, Hall (1999) argued how proper names are a fundamental aspect of an individual's identity, and that having a name constitutes one of the most fundamental human rights. Also, in some contexts, a change in name represents the boundary between an individual's old identity and her/his new roles and destiny (see for example the change of the name of the chosen pope during the ecclesiastical investiture, or how the giving of a name to a pet animal raises its status to a quasi-human in the eyes of the owner).

Although Gelman (2003) highlights the role that labels play in essentialism, she also suggests that the link between essentialist beliefs and nouns may be indirect. Rather than constituting a place-holder for identities, names set the boundaries that define what kind an entity belongs to. The domain-specific theories that an individual has about a target category are supported by the attribution of names at making assumptions about the stability and coherence of that category, and this would underlie essentialist tendencies (Gelman, 2003). In this context, the role played by language could be to provide useful cues and

to reinforce some mechanisms that are already intrinsic to the infant's abilities, amongst which are their inferential capacities (Gelman, 2003). In Gelman's words, "Essentialism is initially a non-linguistic assumption that is intensified by language and that over time comes to be cued by words" (Gelman, 2003; p. 193).

2.3. The structure of essentialist beliefs

This section presents some studies that have investigated the structure of essentialist beliefs about social categories. In particular, a strand of research suggests the interplay of two dimensions in the structure of essentialist beliefs: Entitativity and Natural Kind. This conclusion was reached in the light of some work investigating a little known phenomenon: what are the elements that occur in essentialist beliefs about social categories (Haslam et al., 2000). The conceptual framework on which the work conducted for this thesis is based is discussed in this section.

Study 1 and 2 hypothesised that some cultural differences would be observed in the structure of essentialist beliefs about social categories, and this hypothesis was formulated on the basis of Haslam et al. (2000) investigation. In their study, two elements were described as crucial in the explanation of essentialist beliefs: Natural Kind and Entitativity. A definition for these two dimensions will be provided in the first part of this section. The dimensions will be also extensively discussed in the first empirical chapter, Chapter 3. The final part of this section discusses the relevance of these two factors in the understanding of essentialist beliefs.

Over the years several authors (e.g., Rothbart & Taylor, 1992; Yzerbyt et al., 1997) have looked at the structure of essentialist beliefs. In particular, research conducted by Haslam et al. (2000; 2002; 2004) constituted a

breakthrough in the field, and suggested that essentialist beliefs seem to be defined by the occurrence of two dimensions: the perceived Natural-Kind-ness and the perceived Entitativity of social groups. The term Natural Kind (or Natural-Kind-ness) refers to lay-people's beliefs that some categories have a biological make-up, are distinct from other categories, and do not change easily in the course of history (Haslam et al., 2000). The term Entitativity comes from entity, and from the perception of groups as entities, and states that belonging to a certain category provides much information about its members. Also, some categories are thought of as inherent and highly cohesive entities.

Yzerbyt et al. (1997) defined social categorisation through five characteristics: a) social categories have an ontological status which makes their members share some essential features; b) category membership is perceived as immutable; c) essentialist categories have an inductive potential that allows inferences about the members of that category; d) a unifying theme is believed to link category members one to another; e) essentialism is linked to exclusivity, and members of one category cannot easily be seen as members of another.

In the field of psychological essentialism, some authors have tried to link social categorisation and essentialist beliefs. In particular, Haslam et al. (2000) carried out an investigation in order to define the structure of essentialist beliefs about social categories. In their study, a list of nine components of essentialism was drawn by borrowing some elements of psychological essentialism mentioned in the social scientific and philosophical literature. The nine items included Discreteness, Uniformity, Informativeness, Naturalness, Immutability, Stability, Inherence, Necessity, and Exclusivity. These nine components were employed in the design of a rating scale to be tested on a list of some common

social categories (e.g., gender groups, age groups, and profession groups).

In total, the study counted forty social categories to be rated on the nine scales of essentialism by a group of 40 undergraduate students from a conservative mid-West American college.

The Principal Components Analysis (PCA) showed that the scales grouped around two separate components, which were labelled as the Natural Kind dimension and the Entitativity dimension. According to Haslam et al. (2000), the Natural Kind dimension is composed of the five measures of Discreteness (some categories have more defined and clear-cut boundaries than others); Naturalness (some categories are more natural whereas others are more artificial); Immutability (for some categories becoming a member is easy and mutable, whereas for other categories it is more difficult and immutable); Stability (some categories have always existed and they are relatively stable whereas some categories change much over time), and Necessity (individuals need to have certain characteristics in order to become members of certain categories, whereas for other categories there is not such requirement), see Table 3.2 for complete wording, and Table 3.4 for measures ratings.

On the other hand, the Entitativity dimension is composed of the four measures of Uniformity (members of certain categories share many traits and they are relatively uniform, whereas members of other categories have not many things in common); Informativeness (for certain categories being a member provides much information about who they are, whereas other categories are less informative of their members); Inherence (members of some categories have some deep characteristics in common even though their outer traits are not the same, whereas other categories do not have such underlying reality), and

Exclusivity (belonging to some categories may be exclusive of other category memberships, while other categories are less exclusive about which other categories their members can belong to), see Table 3.3 for complete wording and Table 3.4 for measures ratings.

As argued by Haslam et al. (2000), social categories are essentialised in two independent ways. One involves the perception that a category is a Natural Kind -- with stable, immutable, and natural traits -- while the other one involves seeing a social category as an entity -- with inherent and exclusive properties that make it informative about the person. For example, categories such as gender and race rated higher on Natural-Kind-ness, whereas categories like religious beliefs and political attitudes scored higher on Entitativity. The methodology and findings of Haslam et al. (2000) are discussed in detail in Chapter 3.

However, the design utilised by Haslam et al. (2000) was criticised by Demoulin, Leyens, and Yzerbyt (2006), who argued that those nine measures fail to employ a direct measurement of essentialism as separate from the two dimensions of Natural-Kind-ness and Entitativity. They suggested that the most suitable and direct measurement of essentialism would be the Inherence measure, which summarises the meaning of essentialism, of having inherent properties.

Also, Demoulin, Leyens, and Yzerbyt's (2006) point of view was that essentialist beliefs represent either the consequence or the antecedent of certain beliefs, but not the core of essentialism. This view had previously been shared by Yzerbyt et al. (2004) who called inherence "a proxy for essence" (p. 106). Under this view, inherence refers to an underlying nature which is the most basic defining feature of essentialism, thus it should be considered as an independent

measure (Demoulin, Leyens, & Yzerbyt, 2006).

Haslam, Bastian, and Bissett (2004) provided some further evidence for this claim. In their experiment they noted that Inherence was, amongst some other essentialist beliefs, the more strongly associated with judgments about traits defining personal identity. Moreover, in an experiment from 2005, Haslam et al. found that only Inherence, amongst other measures of essentialism, played a role in self-humanisation processes, and they suggested that Inherence could synthesise very well some deep and fundamental traits of human nature.

In a study from 2006, Demoulin, Leyens, and Yzerbyt aimed at providing some evidence for why categories are perceived through these two separate lenses of Natural-Kind-ness and Entitativity. They also stressed the practicality of the findings, since the two dimensions may have different implications for the onset of prejudice. Their study focused on the extent to which group membership influences essentialist beliefs about other groups. In particular, one of the factors that they considered was chosen versus forced membership in a social category, where the former factor (CSC) refers to one's own personal choice at being a group's member, and the latter factor (FSC) refers to groups for which membership does not depend on one's own will and decision.

Demoulin, Leyens, and Yzerbyt (2006) hypothesised that FSC could lead to the perception of a greater Natural-Kind-ness as opposed to CSC where the perception of Entitativity should prevail. They ran a set of studies in order to test four hypotheses: first, they wanted to see whether the structure of essentialist beliefs would come out again with the two-factor pattern found by Haslam et al. (2000). Then, they looked at whether there would be any differences between essentialist beliefs towards FSC and CSC. Also, they hypothesised that the level

of Natural-Kind-ness would be higher for FSC and lower for CSC, in contrast to the Entitativity level that would be higher for CSC and lower for FSC. Finally, they predicted that Inherence would be equivalent for both CSC and FSC groups.

Their findings confirmed the occurrence of the two-factor structure found by Haslam et al. (2000), and showed that higher levels of Natural-Kind-ness were perceived for FSC, and higher levels of Entitativity were associated with CSC. Moreover, they found that participants had the tendency to divide groups on the basis of memberships, with a 2X2 Analysis of Variance showing two clusters corresponding to FSC and CSC. Finally, the level of attributed Inherence did not differ from FSC to CSC but was equally present for both groups, as they had predicted.

2.4. Psychological essentialism and humanisation

In this section I will illustrate the concept of humanisation by presenting some work that has been conducted in this field of research. The term humanisation refers to the attribution of human essences to the self and to other individuals. Several terms have been coined in order to provide a definition of the different forms of attribution or deprivation of human essences to individuals. The purpose of the present section is to clarify the meaning of the main terms as well as the research context in which they are relevant. Thus, the first part of this section is dedicated to the understanding of the terminology.

This should provide a good theoretical background from which to move on to the description of some of the most relevant studies, with which the second part of this section deals. Findings in the field of humanisation bring some very insightful knowledge to the understanding of psychological essentialism in all its complexity. In particular, understanding the mechanisms of the attribution of

essences to the self and to others will help to appreciate in more depth the mechanism that underlies essentialist beliefs in intergroup processes and beliefs towards categories an individual is not a member of. This aspect is addressed by Investigation 2 of Study 1 and Study 2 of this thesis, and is discussed in Chapter 3 and Chapter 4.

There is a line of research showing how adults and children think of races as biological domains, which are attributed phenotypic, personality, and behavioural traits that are thought to be representative of the race in question (Hirschfeld, 1996; Hirschfeld, 2001). This concept leads to the belief that races are characterised by inner essences that are inherited by children from parents. Under this view, essences are regarded as more powerful than environmental factors or than the bringing up of the offspring (Machery & Faucher, 2005).

However, this belief may have a negative connotation. Keller (2005) and Lerner (1992) agree upon the fact that biological essentialism increases the level of acceptance and justification of discriminatory policies addressed towards outgroups, compared to situations where such essentialist rationalization is not available. In fact, the concept of humanisation is common in the literature about racism and genocides and in all those contexts where a bitter hatred occurs between social groups. Lerner (1992) wrote: "the enactment of biological determinism into social policies gives us means to make some of our fellow humans less than us. Such prejudice leads inevitably to injustice. This all too often has enabled murder" (Lerner, 1992; p. 196).

Some essentialist rhetoric seems to have favoured genocides and ethnic cleansing, and beliefs in group essences are possibly related to prejudice, discrimination, and social conflict (Yzerbyt et al., 2004; Haslam et al., 2006).

Haslam (2006) remarked that despite the re-occurrence of dehumanisation processes throughout history and the cruelty that still now accompanies devaluation of other social groups and individuals, until a few years ago the phenomenon raised little attention within the social sciences.

By definition, humanisation is a theoretical concept that consists in "making more human", or in attributing an individual a certain extent of positive human qualities, such as individuality, benevolence, and personal warmth. The term dehumanisation is its opposite, and consists in the mental act of depriving individuals of their human qualities. On the other hand, the term infra-humanisation is used in ingroup and outgroup contexts and refers to the tendency of individuals to regard outgroup members as less human than ingroup members (Rodríguez-Pérez et al., 2011). Leyens et al. (2001) claimed that essentialising social groups might involve rebutting their human essence and might therefore lead to infra-humanisation processes.

Haslam et al. (2005) highlighted the importance of the distinction between "human nature characteristics" and "uniquely human characteristics". The occurrence of two different senses of humanness was observed in an investigation upon the two different concepts of human nature (HN) and uniquely human (UH) traits run by Haslam et al. (2005). The term human nature refers to biological, immutable, and deep properties that are typical of the human species and universal across all human beings. They are thought to appear early in life, to be constituted of emotions, and to be universal and prevalent (Haslam et al., 2005). For instance, they can be summarised as emotional responsiveness, interpersonal warmth, cognitive openness, agency, individuality, and depth (Haslam, 2006).

On the other side, there is some agreement in the view that UH traits are linked to culture and socialisation, morality and civility, rationality and logic, maturity, and refinement (see Schwartz & Struch, 1989; Demoulin et al., 2004; Haslam, 2006). These traits may vary across different cultures and also within the same society (Haslam et al., 2005).

As Haslam (2006) argues, these two different senses of humanness find their counterpart in two different senses of dehumanisation. Dehumanisation takes place when the typical traits of one or the other senses of humanisation are denied. When individuals are denied what distinguishes them as human beings from non-human beings (e.g., animals) like cognitive and moral traits, they may be perceived as animal-like and therefore an animalistic form of dehumanisation is applied (Haslam et al., 2008). In this scenario, individuals are thought of as "unintelligent, amoral, and uncivilised" (Loughnan & Haslam, 2007; p. 116).

Far from being exclusively an intergroup event, dehumanisation can also occur in interpersonal processes, and individuals have been observed to assign more human nature traits to themselves than to the rest of the in-group (Haslam et al., 2005). Therefore, animalistic dehumanisation is based on the denial of uniquely human traits and applies to intergroup and interpersonal processes. There is a vast literature in history testifying how human beings have been likened to animals and denied their humanness. This form of dehumanisation has also been observed to be employed as a political strategy in genocidal conflicts (e.g., see the propaganda promulgated against the Jews during the holocaust).

On the other hand, mechanistic dehumanisation develops from the refusal of "human nature" traits and emotions in both interpersonal and intergroup processes. Mechanistic dehumanisation consist in comparing individuals to

"automata", denying them traits that are regarded as universal and basic amongst the human species. In particular, individuals are deprived of emotional traits, and are seen as "cold, rigid, and inert" (Loughnan & Haslam, 2007; p. 116). When the typical HN traits of emotional responsiveness, interpersonal warmth, and individuality are denied, individuals lose what distinguishes them from machines. Usually, these individuals are seen as foreigners, distant, or even aliens (Haslam, 2006).

Findings from Leyens et al. (2001; 2003) showed that ingroups are attributed a greater deal of human essence (humanness) than outgroups. However, this seems to involve exclusively human secondary emotions -- perceived to be lacking in individuals from outgroups -- but not primary emotions, which are universally attributed to all human kinds. Further studies by Gaunt, Leyens, and Sindic (2004) confirm the tendency to deny secondary emotions to outgroup individuals, and to attribute a greater amount of positive and negative emotions to ingroup members. People seem to understand secondary emotions as socially learned rather than inherited through genetic transmission, and to make a late appearance in development.

Haslam et al. (2005) hypothesised that when interpersonal comparison occurs, people attribute greater human essences to themselves than to other individuals. Also, they differentiated intergroup processes, which involve the attribution of uniquely human characteristics, from interpersonal processes, which involve the attribution of human nature characteristics. In individual contexts, it seems that the perception of individuals is that they personally incarnate human essences to a greater extent than others. The reasons for this could be many and various, ranging from the perception of a greater depth in

one's own nature, to the fact that it may be more difficult to observe certain characteristics in other individuals.

An interesting study on humanisation was ran by Haslam et al. (2005), looking at whether the two different assumptions of humanness -- humanness and human uniqueness -- are found in lay-people's beliefs and, if so, whether either one or the other one, or both, are perceived in an essentialist way. The concept of human uniqueness is the exact correspondent of humanness, but in the context of the infra-humanisation theory (group contexts). The hypothesis formulated by Haslam et al. (2005) was that individuals do not attribute uniquely human characteristics to outgroup members.

The study included a pilot study, and had a total of 80 personality characteristics assessed on a seven-point Likert scale. Four versions of the questionnaire were constructed, counting 20 personality characteristics each, which were to be rated on fourteen items of human nature and uniquely human traits (e.g., uniquely human: "This characteristic is experienced solely by human beings and is not experienced by animals"; human nature: "This characteristic is an aspect of human nature"), essentialist beliefs (consistency, immutability, informativeness, and inherence), predictors of trait essentialism (emotion, desirability, prevalence, and universality), and some predictors of uniquely human judgments (age of emergence, cognition, morality, and social learning). The study showed that the two concepts of human nature traits and uniquely human traits failed to correlate, confirming the occurrence of two distinct understandings of human essences.

For the group of human nature, some qualities like pro-sociality, openness, warmth, cognitive flexibility, and also negative emotionality rated

high. On the other hand, for the group of uniquely human qualities morality, self-control, intelligence, and sociality were the most listed features. Three groups of judgements were presented in the study. The first group was hypothesised to tap into judgements on human nature and essentialism. There was no expectation for essentialist beliefs to be associated with uniquely human judgements. The second group was also related to human nature judgements but not to essentialist beliefs. The third group was related to uniquely human judgements, with the expectation that traits are perceived as uniquely human as long as they are considered the fruit of social transmission, observed at a relatively late age rather than at birth, relevant to morality, and subordinated to cognition.

The first study confirmed the coexistence of the two distinct concepts of human nature and uniquely human characteristics, of which only the former is essentialised and located in the Natural Kind domain. Also, individuals rated desirable personality characteristics high in the human nature domain, thus it is important to keep the self-humanisation concept distinct from the self-enhancement concept. The former term, self-humanisation, is concerned with the attribution of more human nature traits to one's self than to others. The latter term, self-enhancement, consists in the mechanism involving an individual's belief of being above average for positive characteristics and for the likelihood to be successful, and below average for negative traits and for the likelihood to face adverse events.

Self-humanisation and self-enhancement were the subjects of the second study, which tested the hypothesis that the two concepts are not statistically dependent, and that only self-enhancement attributes would positively correlate with self-esteem. The results confirmed the distinctness of the two concepts and

the association of self-esteem to self-enhancement concepts. Moreover, human nature traits were extensively attributed to themselves more than to others, and the self-humanisation inclination was observed to be stronger than self-enhancement, adding new knowledge to how individuals perceive themselves, which usually correspond to perceiving themselves above average on some positive traits like desirability and humanness.

A further study (study 3) was run in order to test the robustness of the self-humanisation effect, and to investigate the mechanism behind a different attribution of human traits to others. Haslam et al. (2005) hypothesised and tested some aspects that might function as mediators of the self-humanisation process. These ranged from affective and emotional traits, which might be not be readily observable from the outside, to personality traits. Also, in light of the finding that human nature is essentialised, some elements of essentialism were included as mediators of self-humanisation.

A mediator is an intermediate variable between the predictor and the criterion: if held constant with partial correlation the relation between two other variables changes. This effect occurs because the first variable has an effect on the mediator, which then has an effect on the second variable. Mediators function as an explanation of the effect of external factors on individuals' psychology (Baron & Kenny, 1986). In order to qualify as mediators, variables must present the following conditions: a) variations in the values of the independent variable produce variations in the values of the mediator; b) variations in the mediators produce variations in the independent variable; c) in cases where mediator and dependent variables are controlled there is no significant relationship between dependent and independent variables (Baron & Kenny, 1986).

The results showed that six out of seven of the mediators used in the study were not supported in the analysis, and that the only one supported was inherence (Haslam et al., 2005). This might suggest that some traits could be rated above average for one's own traits but not for others because of the perception of an underlying and deeply rooted nature. This aspect had also been previously discussed by Yzerbyt et al. (2004), who observed that inherence represents the most fundamental aspect of essentialism, with the strongest link to personal identity than any other element of essentialism.

Also, a further study was included in the investigation, aiming at replicating the effect for self-humanisation observed in study 2 and 3, by using a different methodology, which was seen as more suitable for the needs of self-humanising. Therefore, a set of personality characteristics classified along the three dimensions of desirability, human uniqueness, and human nature were used. Also, participants had to rate themselves as well as ingroup members, rather than outgroup members. The findings revealed that people seem to attribute human nature traits to themselves and to the ingroup, but no evidence for higher ratings on negative traits for self-humanisation was found.

The set of studies run by Haslam et al. (2005) discussed above broadens our knowledge of the little-explored world of human essentialist beliefs. In broad terms, this work shows that individuals attribute human nature traits to themselves to a greater extent than to others. Also, it introduced the distinctiveness of the two concepts of human nature traits and uniquely human traits: if human nature traits are rated above average for one's self, uniquely human traits are perceived as by-products of cultural exposure and are assimilated later in life. Human nature traits seem to be bound-up with inborn

emotional responsiveness such as “interpersonal warmth”, “openness”, “imagination”, and “negative emotionality”, which constitute universal features.

A possible explanation for this disposition could be that it might sometimes be difficult to grasp someone else’s traits, and all the different nuances we appreciate in ourselves are not grasped in others. Therefore, Haslam and Bain (2007) considered three items to be tested as self-humanising moderators, which were “focalism”, “empathy”, and “abstract construal”. This study was run because of a lack of research testing moderators in self-humanisation processes. A moderator -- according to the definition given by Baron and Kenny (1986) -- “is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent, or predictor, variable, and a dependent, or criterion, variable.

Within a correlational analysis framework, a moderator is “a third variable that affects the zero-order correlation between two other variables” (Baron & Kenny, 1986, p. 1174). Also, given a possible explanation of the self-humanising process as a way to humanise one’s defects, trait valence was introduced as a fourth moderator. The findings from study 1 showed that an important part in the self-humanisation process is played by “egocentrism”, meaning by this a greater availability of inner trait information, which determines a perception of a better match with human nature traits. Also, it is thought that a motivation factor comes into play and makes one’s negative traits appear more acceptable.

Study 2 tested abstractness and the hypothesis that a greater portion of humanness might be attributed to one’s self due to the difficulty in perceiving

other people as real and tangible. In fact, by introducing some minimal information about a hypothetical subject to the participants, the results showed that self-humanising was drastically reduced by one half and self-enhancement by one third. Finally, study 3 examined the empathy mediator. When applying empathy in human interactions, a greater understanding of other's feelings should be applied and an inter-subjective proximity should be perceived. However, the findings for study 3 did not support the hypothesis about empathy (Haslam & Bain, 2007).

In 2008 Haslam, Kashima, Loughnan, Shi, and Suitner carried out a study about animalistic and mechanistic forms of dehumanisation. The investigation was run on an Australian, a Chinese, and an Italian sample of participants and aimed to shed light on the likelihood of the two types of dehumanisation described above, and to grasp the two extremities of the phenomenon.

The results highlighted a tendency to differentiate humans from non-humans across the three cultures. Despite some cross-cultural differences, animals were generally attributed the same extent of primary emotions as humans, but lesser secondary emotions and cognitive skills, and greater perceptual skills. On the other hand, robots were attributed a little emotional and perceptual ability. Finally, super-human beings (God) were perceived as superior in both perceptual and cognitive skills, and similar to humans for emotional skills.

In brief, Haslam, Kashima, Loughnan, Shi, and Suitner (2008) found that there was a good match between these findings and the results from Haslam's (2006) model of de-humanisation, where emotions and aspirations are found to

be the essence of human nature and also constitute the dividing lines between human beings and robots. On the other side, human uniqueness traits -- like cognition and secondary emotions -- differentiate human beings from animals.

2.5. Psychological essentialism and the perception of individuals and groups

Section 1.6 discussed categorisation in general terms by providing a definition for it and describing the main theories of categorisation. The purpose of this section is to outline the process of social categorisation in individual contexts, and to provide a conceptual framework for Study 4. Study 4 looked at how a target individual's personality traits are perceived by individuals who see either a photograph of a facial stimulus or read a story about a target individual.

In this section, the link between social categorisation and psychological essentialism will be discussed, and the great amount of empirical evidence provided by studies on lay-people's essentialist beliefs about social groups will be considered. To begin with, the need for coherence in the perception and categorisation of social partners, which is explained by the concepts of stability of traits, unity, and historical continuity, will be mentioned. Then, an outline of the basic principles of social perception will be given. Finally, some relevant studies that explored two of the tendencies that are connected to social categorisation will be described. They are the attribution of underlying realities to social categories, and the mechanism of devaluation and prejudice.

In the past few decades, one of the main areas of interest for social psychologists has been the study of social perception -- how people view others. Since the dawn of social psychology the two main points of investigation have been the perception of individuals and the perception of social groups. Subjects use information to evaluate individuals and groups, and to build their mental

representation upon it. In the literature, the perception of individuals and groups has been addressed as two distinct phenomena (for accounts on impression formation see Fiske & Neuberg, 1990; Ostrom et al., 1980; Wyer et al, 1984; and for accounts on intergroup perception see Brewer & Harasty, 1996; Rothbart et al., 1978).

However, some authors have highlighted the similarities that underpin the mechanism of social perception towards individuals and groups and proposed that the two phenomena are processed by the same rules (Hamilton & Sherman, 1996). Hamilton and Sherman (1996) observed that people make some spontaneous assumptions about individuals when information is processed. This mechanism appears to be different when making judgements about groups, which instead seems to be based on the information stored in memory.

On the other hand, the main point in perceiving individuals is to understand their personality traits and therefore the main focus becomes processing the prominent information instantly. Also, when individuals experience a lack of coherence, they seem less prone to acknowledge identity to groups but more prone to attribute it to individuals, and generally they expect less entitative qualities like coherence, internal organisation, and uniformity from groups than from individuals (Hamilton & Sherman, 1996). The results of Hamilton and Sherman's (1996) investigation showed that whereas people tend to yield different expectations for individuals and for groups, the process by which these expectations are determined is similar.

One of the fundamental postulates about social perception states that individuals are perceived as single and coherent entities, and this principle leads to a unified and coherent vision of other individuals: they are entities with their

inherent traits and essences and with the same internal characteristics which remain stable through time. This concept links to the view of historical continuity as discussed in section 1.3. Historical continuity is observed since early infancy and refers to the fact that perception of identity is maintained through time. This is testified by people's tendency to use the same name for individuals through time in spite of the developmental changes that make their physical appearance or character change consistently (Frazier & Gelman, 2009; Sorrentino, 2001).

Back in 1946 Asch argued that "each person confronts us with a large number of diverse characteristics...yet our impression is from the start unified; it is the impression of a person" (Asch, 1946; p. 258). This assumption of unity in others seems to be the main driver in social perception, and what is inferred is "unity, consistency, and essence" (Hamilton & Sherman, 1996; p. 337). According to Hamilton & Sherman (1996), this is the first and main postulate from which all the other laws of social perception derive.

The second principle is expressed by stability. Some studies highlighted the expectation of stability over time in individuals' personality. Lutsky et al. (1994) carried out a study where they questioned participants about trait stability over a period of 20 years in two target people they knew well. The results showed that very high stability was expected in most traits. The third principle of social perception states that the perception of a target person is organised (Hamilton & Sherman, 1996). In fact, it was observed that when two or more traits are observed in a target person, they are organised as part of a dynamic structure (Asch, 1946). The fourth principle states that perceivers try to understand and solve discrepancies in a target person's behaviour (Hamilton &

Sherman, 1996). Accordingly, when inconsistencies are observed in a target person's behaviour, people look into different reasons that could provide an explanation (Asch, 1946), and may also draw on the so-called attribution process (Hamilton, 1988).

In order to draw a clear picture of the theories about social perception, I will discuss these laws and summarise the main views on the topic in the literature. As previously mentioned, these views were named basic principles in social perception by Hamilton and Sherman (1996), who suggested that they are all connected with the first postulate of unity. In social interaction contexts, some inferences about an individual's core personality traits are made by the perceiver, and the perceived traits are seen as the expression of inner qualities (Hamilton & Sherman, 1996). This process was observed within the domain of the theory of inference, which suggests that perceivers try to infer internal dispositions from a target person's acts.

Asch (1946) observed that individuals tend to go from a general idea of a social target to a more detailed and coherent one. Some authors talked about a primacy effect (Anderson, 1974; Schneider, Hastorf, & Ellsworth, 1979), which postulates that in memory recall tasks, the first few items presented are recalled more frequently than the middle ones (Murdock, 1962). Likewise, Asch (1946) talked about the primacy effect by observing that when individuals are described by a list of traits, the first traits in the list influence the evaluation of the last ones. The second principle of social perception posits that consistency is expected in the personality of a target person (Hamilton & Sherman, 1996). This assumption means that perceivers expect to observe information that is consistent with the first impression they had of a target person (Asch, 1946;

Lutsky et al., 1994).

Individuals seem to have a perception of the differences between their own and other groups, and between their own and other cultures. A psychological distance from “us” and “them” -- between the ingroup and the out-group -- has been observed in the perception that individuals have of others. This mechanism has been broadly discussed in Social Psychology, and also linked to subjective essentialism. Through the mechanism of psychological essentialism similar essences can be attributed to “us” -- like sharing a language, or having the same cultural background, or aspiring to common goals -- thus people feel more similar to individuals who share the same essences and different from those who do not have them (Leyens et al., 2000).

The mechanism of attribution of an underlying nature to social categories has been identified with the term “biological components of psychological essentialism” and was investigated in a series of studies by Keller (2005). These studies aimed at analysing the role of the biological component of psychological essentialism in social processes like stereotyping, prejudice, and political attitudes. Particularly, Keller (2005) looked at some conservative political attitudes such as the protestant work ethic, patriotism, and nationalism, which seem to be related to essentialist beliefs (see Allen, 1994; Lewontin, Rose, & Kamin, 1984). His investigation departed from previous studies showing that people believe that social categories have a natural and entitative nature (Hamilton & Sherman, 1996; Haslam et al., 2000; 2002; 2004; Rothbart & Taylor, 1992; Yzerbyt et al., 2004; Yzerbyt, Rocher, & Schadron, 1997).

According to Keller (2005), essentialist beliefs about social groups may be associated with a mechanism of devaluation. Previous research showed that

essentialist beliefs about social categories seem to provide a fertile soil for prejudice (Haslam et al., 2002; Hoffman & Hurst, 1990; Martin & Parker, 1995; Yzerbyt et al., 2004; Yzerbyt et al., 2001), to favour infra-humanisation tendencies (Demoulin et al., 2009), and to legitimise social disparities (Verkuyten, 2003).

Likewise, research by Haslam et al. (2002) showed that essentialist beliefs might be linked to sexism and racism, although in the study a lack of consistency between essentialist beliefs and measures of prejudice was highlighted. Despite the extensive literature in the subject, Keller (2005) criticised a lack of strong evidence supporting the relationship between essentialist beliefs and prejudice. What he found was a significant relationship between essentialist beliefs as measured by his BGD Scale (Belief in Genetic Determinism) and distinct socio-political attitudes, and some evidence which showed a functional role played by essentialist beliefs in justifying and rationalizing a given social order. His findings confirmed what was previously hypothesised by Yzerbyt et al. (1997), and also the fact that the biological component of psychological essentialism is a determinant in motivated social cognition.

This argument was further explored by Rangel and Keller (2011), who argued that the Belief in Genetic Determinism (BGD) does not constitute the only scale in determining essentialist beliefs, but that the approach should be complemented by the concept of Belief in Social Determinism (BSD), which acknowledges the role of social factors in shaping an individual's essential traits. Rangel and Keller (2011) claim that both BGD and BSD concur in the making of essentialist beliefs and this was eventually supported by the results of their

investigation, where it was observed that both concepts predict the negative consequences of prejudice and discrimination. Particularly, it was observed that BSD serves as a justification of the negative attitudes towards other individuals, and represents a pervasive lay-theory. Therefore, essentialism seems to involve various forms of determinism such as biological, historical, and social (Yzerbyt & Demoulin, 2010).

Some recent investigations put the accent on the connection between social categorisation and essentialist beliefs. A study conducted by Bastian, Loughnan, and Koval (2011) tested the implications that beliefs about differences among individuals have for automatic responses. They administered a measure of essentialist beliefs borrowed from former work (see Bastian & Haslam, 2006; 2008) on a sample of 102 participants. The measure utilised, called ES+, is based on evidence showing that essentialist thinking is related to beliefs about human traits such as Immutability, Biological Basis, Discreteness, and Informativeness (see Haslam et al., 2000). Participants also completed four sets of trials of the Go No-go Association Task (GNAT) designed by Nosek and Banaji (2001) about the four concepts of Asian-good, Asian-bad, Caucasian-good, and Caucasian-bad (Bastian, Loughnan, & Koval, 2011).

The automatic responses were measured through the model designed by Paladino and Castelli (2008). The study showed that individuals who have essentialist beliefs about human traits (e.g., attribution of distinctiveness, stability, and informativeness) are likely to perform some body responses upon the group membership of target individuals. The automatic motor activation responses that were observed in Bastian, Loughnan, and Koval's (2011) experiment as a reaction to group membership seem to testify a strong link

between essentialist beliefs and categorisation processes, which would go beyond negative or positive connotations attributed to the target category.

In fact, even in the absence of prejudicial thoughts about the outgroup, subjects showed a prompter activation of their motor responses in presence of an exemplar representing the ingroup (Bastian, Loughnan, & Koval, 2011). Bastian, Loughnan, and Koval (2011) argued that preference for the ingroup may be automatic and that this effect could represent the ground for developing prejudicial sentiments towards the outgroup. Therefore, motor-responses to one's own group are more immediate and automatic than responses for the outgroup even if beliefs towards the outgroup are neither positively nor negatively connoted (Bastian, Loughnan, & Koval, 2011).

2.6. The effect of culture in cross-cultural differences in cognitive style

This section will discuss the occurrence of cultural differences in cognitive styles, and the effect of different cultural contexts in human cognition. At the beginning of the section some introduction will guide the reader through the most significant positions in the field, whereas in the second part some empirical work providing evidence about differences between the eastern and western hemispheres, and between Mediterranean and Anglophone cultures, is presented. Discussion of studies about the perception of the world by easterners and westerners will offer the reader first insight into these differences. Thus, the discourse will narrow down to evidence about more specific dissimilarities between northern and southern Europeans, which is directly relevant to the present work. The final part of the section will then illustrate laypeople’s beliefs about cultural differences in cognitive styles.

This section aims to provide some theoretical background supporting the hypothesis of cultural changes in essentialist beliefs, which is one of the aspects investigated in the first and second studies presented in this thesis. In particular, I looked at the impact of multiculturalism in essentialist beliefs and of cultural differences in cognitive styles, and expected that a sample of subjects from multicultural contexts would produce less strong essentialist beliefs about others' categories than a sample of subjects from mono-cultural contexts (Verkuyten, 2005). Empirical evidence supports theories about the occurrence of some differences in the cognitive style of individuals from eastern and western cultures (Oyserman & Lee, 2008; Nisbett, 2003), and from Anglophone and Mediterranean cultures (Hampden-Turner & Trompenaars, 1993).

According to Cole et al. (1971), "Every culture has its myths. One of the most persistent is that non-literate people in less developed countries possess something we like to call a "primitive mentality" that is both different from and inferior to our own. This myth has it that the "primitive mind" is highly concrete, whereas the "western mind" is highly abstract; the "primitive mind" connects its concrete ideas by rote associations, whereas the "western mind" connects its abstract ideas by general relations; the "primitive mind" is illogical and insensitive to contradictions, whereas the "western mind" is mature and rational, and so on and on. In its most frightening form this myth includes the claim that these differences are genetically based [.....]. The same stereotype is likely to be applied to ethnic minorities living in the West." (Cole et al., 1971; p. vii).

In order to test the myth mentioned above, many researchers in the Social Sciences have focused their work on what the differences and the similarities amongst different cultures are. In his preface of the book "The Cultural Context

of Learning and Thinking" (Cole et al., 1971), Miller argued that if different minds occur in some aspects of cognition, they are to be seen as the result of cultural influences rather than of evolution.

By the term cognition we want to make reference to the many cognitive processes that come into play in the understanding of the world (Frith, 2008). Cognitive styles consist in an individual's pattern in perception, thinking, learning, relationship making, and problem solving (Witkin et al., 1977). Also, they can be thought of as the individual differences in perceiving the stimuli of the environment and the use and organisation of the information provided by the environment (Van Den Broeck et al., 2002).

One of the biggest questions about cultural influence is how human cognition is shaped by culture and by the context where an individual's live happens. A belief that has accompanied anthropologists for a long time, until about half of the 19th century, was that cultural differences cause cognitive differences. This position has been supported by Boas (1911), who claimed that "the existence of a mind absolutely independent of conditions of life is unthinkable" (p. 133), and that "the functions of the human mind are common to the whole of humanity" (p. 135). This position is shared by Mesquita, Feldman-Barrett, and Smith (2010), who argued that: "The unity of selection is not the gene but the individual, who, for the purpose of molecular genetics, can be thought of as a bundle of genes that are turned on and off by our DNA, which is regulated by the epigenetic context" *(*p. 2).

These views strongly support the importance of the environment in the making of individuals. Some authors also point out that westerner psychologists too often carry out their investigations in a way that reinforces psychological

essentialism and shifts the attention away from some very important matters, like for instance, the importance of contexts (Mesquita, Feldman-Barrett, & Smith, 2010). This approach has led to a fragmentation of cognitive and emotional processes and to a treatment of them as separated issues. For this reason, I would like to explain, in this section of the present chapter, how contextual factors and mental processes cohabit and influence each others in a constant and dynamic manner.

A strand of research shows how different contexts cause different emotional and physical responses in biological kinds. For example, studies on rats show how, in the presence of a threat, rats behave differently: if left free to run away they would do so and their blood pressure decreases, but if restrained their blood pressure would rise (Iwata & LeDoux, 1988). This evidence recalls the context principle, which refers to the fact that all human processes -- from behaviour, to emotions, and thoughts -- are caused by the continuous and constant interaction with the environment. The contextual entities may range from the physical environment, to cognitive processes, to the socio-cultural environment (Mesquita, Feldman-Barrett, & Smith, 2010).

This theory in psychology is not new. In fact, it dates back to Wundt's (1916) theories about the influence of the social surroundings in an individual's make-up, but also to other theories from the first few decades of the 20th century (e.g., Lewin, 1935). In more recent years, Mischel and Shoda (2008) argued how individuals' behaviours are not the result of essential features, but the product of the interaction between contextual factors and personal character, and that social influence is the key to grasp an individual's personality in a holistic way. In Bruner's (1990) words: "contexts shape the human mind by imposing the

patterns inherent in the culture's symbolic systems -- its language and discourse mode, the forms of logical and narrative explication, and the patterns of mutually dependent communal life" *(*p. 4).

The position upheld by the cross-cultural approach to differences in cognitive styles is that the basic cognitive processes are universally shared amongst human kinds, but different abilities are produced by the employment of different cognitive abilities based on the requirements of the environment (Berry et al., 2002). This belief had been previously disseminated by Ferguson (1956) and is shared by the ecological perspective of Berry (1980).

The ecological analysis' point of view is that the ecological demands of the environment set the actions for survival, and that cultural support facilitates the development of the most suitable cognitive skills. This approach includes the idea of the presence of a number of universal abilities (abilities baseline) shared by human kinds, which are affected by ecological requirements that determine the development of some patterns of abilities. In a similar opinion, Cole et al. (1971) said that "people will be good at doing things that are important to them, and that they have occasion to do often" (p. xi).

2.6.1. Cultural differences between East and West

Contemporary cultures may be considered as the by-product of the ancient cultures from which they have been generated. The two main lanes of thought that are still regarded as conceptually different in many respects are the western and the eastern philosophies. They represent two approaches to life, the matrix from which the destiny of the two hemispheres of the globe developed, and can be traced back to ancient times. That would be the time where ancient Greek philosophers debated over the matters of the world in a place near

Syntagma Square in Athens, and the time where Confucius elaborated the concepts of morality, justice, and sincerity as rules to be employed for the collective benefit (Nisbett, 2003).

The two cultures have developed in profoundly different ways. On the one hand the Greeks, the promoters of individuality and democracy, were the supporters of what they defined as the most peculiar traits in human beings -- curiosity -- as a path towards the understanding of one's own interiority, talents, and of the external world. On the other hand the Chinese, who regarded harmony as the highest ambition in societies, a value to be accomplished through the individual and collective effort of respecting others by controlling the self. For them, the perfect society would be the one where the contribution of every single individual is not lost but harmonically coexists with the individuality of all the other members (Nisbett, 2003).

Although analysis of the differences between East and West goes beyond the purpose of this section, they are mentioned because represent an interesting testimony of how cultural backgrounds influence individuals. For instance, in these two models of society mental processes differentiate profoundly. In fact, on the contrary of the values of harmonic coexistence promoted by Confucianism in the East, in western cultures individuals are free to face conflict when interacting with people with different points of view, and so can practise their dialectic tools and lead debate.

Oyserman and Lee (2008) carried out an investigation on the literature about the role of collectivism and individualism in what and how individuals think. These two terms refer to some important differences in the structure of societies and in the relationships amongst individuals, and have been the focus of

scholarship about the understanding of psychological processes (Oyserman, Coon, & Kemmelmeier, 2002). Collectivist cultures perceive groups as the core of societies, where individuals exist in function of their group memberships and social relationships. Instead, individualistic cultures see individuals as the unit of measure for societies, whose purpose is to promote the prosperity of their members. Societies that are identified as collectivist are for example the Asian and Chinese culture, whereas societies that are thought of as individualistic are those identified with the western hemisphere.

It is believed that life experiences of individuals would vary considerably in the two contexts, and that this would also lead to the use of some cognitive processes (e.g., inclusion) rather than others (e.g., exclusion) (see Oyserman & Lee, 2008). In this respect, the literature provides some empirical evidence about the characteristics of individuals from individualistic cultures as opposite to those from collectivistic cultures. This evidence can be summarised in five points: 1) in individualistic settings collective values will decrease in favour of individualistic values; 2) one's own self-concept will make a bigger use of personal traits than collective traits; 3) the obligations towards others will decrease; 4) well-being will be linked to personal success rather than social obligations; 5) cognitive strategies will favour contrast and distinction rather than assimilation and integration (Oyserman & Lee, 2008).

For what concerns cognitive styles, in particular, results showed that individuals that belong to collectivist cultures are more likely to include and relate information rather than exclude and separate it. On the contrary, individuals that belong to individualist societies are more likely to contrast and separate information rather than integrating it. Likewise, further studies

highlighted some differences in the speed of tasks completion between subjects from the two cultural settings (Oyserman et al., 2008).

A further theoretical position about different ways of seeing the world was proposed by Witkin et al. (1962) through the psychological differentiation theory, which was elaborated within the empirical work on field-dependence. The concept of psychological differentiation states that different biological and psychological conditions may produce different cognitive styles (Witkin et al., 1962). According to this conceptualisation, the two main cognitive styles individuated in human kinds are the field-dependent and the field-independent style. Field dependence consists in the extent to which the surrounding background influences the perception of an object, and was investigated by Witkin and colleagues (1962; 1977) in a series of studies in which it was observed that a set of abilities -- and in particular cognitive and social skills -- seemed to be related to each other as if they were a pattern.

In a paper from 1977, Witkin and Goodenough argued that in ambiguous situations social referents are used by field-dependent people to resolve confusion. Field-dependent people rely more on social cues and are socially orientated: they show closer physical proximity with social partners, are more interactive with other individuals, and show emotional openness. Generally, field-dependent people are defined by a positive attitude in social interactions and by a set of positive social skills. On the other hand, field-independent people tend to maintain physical distance with their social partners, and to prefer non-social situations. They are more autonomous in ambiguous situations, have poor social skills and little interest in social interactions. Instead, they show very good skills in cognitive analysis.

In view of the results of the work on field-dependence, Witkin and Berry (1975) argued that people who live in tight social settings, and people whose job involves a certain level of cooperation and coordination with other individuals (e.g., subjects from agricultural settings) are more field-dependent than those who live in loose social structures and whose occupation is relatively free from social links and roles (e.g., subjects from hunting settings). Likewise, it is thought that educated individuals and particularly people from a western educational background would be more field-independent (Witkin & Berry, 1975).

The work presented above supports evidence for the fact that cultural differences shape different minds in the two hemispheres of the globe. However, evidence about cross-national differences is also available and will be introduced in the next sub-section.

2.6.2. Cross-cultural studies about differences in cognitive styles

A series of experiments show that cultural differences are to be found not only between easterners and westerners, but also between subgroups of the western culture. For example, in a study carried out by Hampden-Turner and Trompenaars (1993) some striking differences were observed between the group composed of the Anglophones (including the British, the Canadians, the North-Americans, the Australians, and also the Swedish) and the group of the Mediterraneans (including the Italians, the Spanish, the French, the Belgians, and also the Germans).

The study was run with the impressive sample of 15.000 participants, recruited through seminars for company managers. The investigators aimed at exploring the value that the participants attributed to individual distinction versus

harmony with the group through the preference given to jobs in which individuality is encouraged and valued, and jobs in which everyone works together for the benefit of the whole group. The sample was composed of Americans, Canadians, Australians, British, Dutch, Swedish, Belgians, Germans, French, Italians, Spaniards, Singaporeans, Koreans, and Japanese.

The results saw the majority (90%) of Americans, Canadians, British, Australians, Dutch, and Swedish preferring jobs were individuality is more valued, whereas this was true for only the 50% of the Asians. The percentage for participants from the rest of Europe was in between the two trends. This result was also replicated in two subsequent experiments run by Hampden-Turner and Trompenaars (1993), showing a tendency for people from Anglo-Saxon cultures to hold opposite views from people from Asian cultures, and for the rest of the Europeans to fall in between these two trends.

A further investigation run by Maass, Karasawa, Politi, and Suga (2006) provided evidence of cross-national differences in the use of language and demonstrated that in the Japanese culture concrete language that make use of context-limiting verbs as descriptors is preferred, whereas in the Italian culture a use of a more abstract language that favour non contextual adjectives is more likely to be employed.

2.6.3. Differences between traditional and modern cultures

In 1966 Levy-Strauss borrowed the term “primitive mind” (termed “mentalité primitive” in the French version of his book “La Pensee Sauvage”) from Boas (1911) in order to refer to primitive cultures. He specified that the use of this term did not want to downgrade primitive cultures and to say that they have a lower cognitive potential. Instead, he argued that both western and non-

western cultures develop strategies with the similar intent to understand the real world through rationality. However, some differences are found in the strategies employed, which would be closer to tangible properties in non-western cultures, and be more inferential in western cultures.

Modern societies can be defined through the two opposite trends of individualisation and globalisation. The former term refers to the fact that one's own individuality becomes the referent for values, attitudes, aspirations, and goals. Thus, individuals follow their own values for personal fulfilment in an autonomous fashion (Van Den Broeck et al., 2002). The latter term refers to modern life as an event occurring in a "global village" (Robertson, 1992; p. 8), where constant confrontation amongst different cultures is experienced and foreign values become known and assimilated.

2.6.4. Cultural differences in essentialist beliefs

In view of the fact that there are some features that are universally shared by all human beings, some beliefs about other individuals happen to be similar from one culture to another. For example, some interesting similarities have been observed in the perception of the stability of psychological traits amongst young American children and young Hindu children (Miller, 1987). However, cultural differences in beliefs also occur. For instance, some authors argued that ideologies about one's own and others' culture are passed from parents to children, and that this process starts from birth and continues through life (Greenfield, Keller, Fuligni, & Maynard, 2003).

Whereas some general beliefs -- or folk-psychologies -- are more likely to be transmitted from an early age, variations in beliefs through development suggest that some of them become more familiar at a later stage of life (Lockhart

et al., 2009). In a cross-cultural study about the stability of psychological traits in individuals, it was observed that young children (aged between 5 and 6 years) from Japan and from America were very optimistic about the possibility for negative traits to change over time. On the contrary, older children (between 8 and 10 years old) were more likely to attribute changes to personal effort. The results from the adult sample showed a different trend, as adults generally viewed personality traits as inborn and thus more essentialists. The findings of the study also highlighted some differences between the two cultures. In particular, Japanese participants overall showed a greater level of optimism towards the stability of positive traits and the possibility for negative traits to change (Lockhart et al., 2009).

To conclude, social practices are not just a way to structure societies or to approach life matters. Instead, they consist in the extent to which different visions of the world are implemented (Nisbett, 2003). However, psychological and cognitive characteristics are not immutable, and a person would greatly modify his behaviour, his social interactions, and his self-concept, after experiencing life in different cultural contexts (Nisbett, 2003).

Chapter 3:

Essentialist beliefs about social categories: An investigation into the effect of social context and category membership

3.1. Introduction

In everyday life people are immersed in a context of social relationships and from an early age they become familiar with social labels. According to Goldman (1999), human life is a process leading towards knowledge, discovery, and understanding of new information; the two main driving forces being practical needs and curiosity. By naming categories, and by reflecting on their peculiarities, individuals draw a picture of the social environment. From an early age individuals are attracted by objects, animals, and other people: they are labelled and their inherent meaning explored. In Chapter 1 and 2, I discussed how some authors (e.g., Medin, 1989; Gelman, 2003; Bloom & Gelman, 2008; Legare, Gelman, & Wellman, 2010) identified psychological essentialism with a powerful tool that humans use to go beyond the superficial appearance of things and to grasp their deeper structure.

In Chapter 2, I talked about the substantial growth in interest around psychological essentialism that occurred in the past ten years in Psychology. In particular, Social and Cognitive Psychology studies have focused attention on psychological essentialism as the mechanism that underlies social categorisation and stereotype endorsement (Bastian & Haslam, 2006; Haslam et al., 2002), and on essentialist beliefs about social categories (Demoulin et al., 2006; Haslam et al., 2006; Gelman, 2003; Mahalingam, 2003; Haslam & Ernst, 2002; Haslam et al. , 2002; Gil-White, 2001; Hamilton & Sherman, 1996).

Research by Haslam et al. (2000) suggests that social categories are perceived by people through the lens of essentialist beliefs, and that essentialist beliefs are organized along two dimensions: Natural Kind and Entitativity. The term Natural Kind refers to the belief people have about certain categories

having biological origins, and being characterised by sharp boundaries and historical invariance (Haslam et al., 2000). On the other hand, the term Entitativity makes reference to lay beliefs about certain social categories being inherent, informative, and highly cohesive.

From about a decade ago, interest in essentialism from a Social and Cognitive Psychology perspective has grown considerably, and a series of studies have provided some important empirical contributions. In particular, Haslam et al. ran a ground breaking investigation in 2000, with which they intended to explore lay-people's essentialist beliefs. This investigation constitutes the study upon which the design of Study 1 built, and will be illustrated in detail in the next section. Study 1 does not represent a direct replication of Haslam et al. (2000) since different social categories were used. In fact, a direct replication would involve presenting London participants with categories which may not be most meaningful to them. Therefore, Study 1 used a procedural replication in which the same methods were used throughout but social categories were generated by a sample from the chosen population, rather than taken from the US study. This provides a better test of cultural differences, which is not biased by selection of materials.

The following sections -- section 3.3 and 3.4 -- will focus on the methodology and results of Study 1, whereas investigation 2 of Study 1 is outlined in section 3.5. At the end of the chapter, a general discussion of the findings will be provided along with a comparison with Haslam et al. (2000), and some conclusions will be drawn.

3.2. Overview of a former study on essentialist beliefs

The experiment carried out by Haslam et al. (2000) aimed at investigating three main aspects of essentialist beliefs. The first one was the extent to which people essentialise social categories. The second one concerned the structure of essentialist beliefs and which beliefs apply to which social categories. Finally, they wanted to investigate the link between essentialist beliefs and social evaluation.

The experiment they carried out involved a sample of forty students from a conservative mid-West American college (mean age 19.3 years, 31 women and 9 men), who were asked to rate 40 social categories (such as Male, Homosexual, Old, and Liberal) on nine dimensions of essentialism. There were two versions of the questionnaire featuring each 20 categories (one category for each domain), and each participant rated either one or the other version, with half of the sample rating twenty categories only.

The measures of essentialism had been taken from relevant writings in Social Sciences and Philosophy, and included dimensions such as Naturalness and Informativeness (see Table 3.1 for a complete list of categories, Table 3.2 for a list of the Natural Kind measures, and Table 3.3 for a list of the Entitativity measures). In the pre-test stage, participants were requested to draw a list of categories representative of the American culture upon 20 social domains provided by the investigators. A wide range of categories was obtained, of which 40 were kept for the study. Four versions of the questionnaire were constructed, with each version including only one category of the pair of two listed per domain. Each questionnaire obtained ratings for twenty categories and was randomly distributed to participants.

One of the main purposes of Haslam et al.'s (2000) work was to understand the structure of essentialist beliefs and to verify the suitability of the nine measures of essentialism for the understanding of essentialism. To accomplish that, and to see how the nine measures were related to each other, correlations between them were calculated across the mean ratings of the 40 categories on each measure. The results showed both strong and weak correlations among the measures of essentialism, with the nine measures gathering in two separate clusters.

The pattern was confirmed by the principle components analysis, confirming that a two-component solution would be the most adequate for explaining the structure of essentialist beliefs, with its two components be represented by the two unrelated ideas of Natural Kind and Entitativity. This interpretation was given in light of the fact that high correlations were found within the two clusters, with a median inter-correlation of .64, while the median correlation between the two clusters was .08. Also, the Principal Component Analysis showed that Factor 1 and Factor 2 explained on their own 75.2% of the total variance, whereas each additional factor accounted for less than 6.4% of the total variance.

Haslam et al. (2000) observed that Discreteness, Naturalness, Immutability, Stability, and Necessity gathered together under the Natural Kind dimension (see Table 3.2), whereas Uniformity, Informativeness, Inherence, and Exclusivity grouped under the Entitativity dimension (see Table 3.3). Categories in domains like Gender, Race, and Ethnicity were assigned high values along the Natural Kind attributes, whereas Sexual Orientation, Religious Beliefs, and Political Groups were mostly assigned entitative characteristics.

However, some within-domain discrepancies were also identified, with categories that tend to be stigmatised coming out with higher Entitativity and lower Natural Kind values. The more striking incongruities were observed for Language, Height, Disease, Sexual Orientation, Appearance, and Race. In particular, although the Race domain clustered under Natural Kind, Blacks were attributed higher Entitativity than Whites. The same effect was observed for the AIDS category, which scored higher in Entitativity than the Cancer group that was instead considered more natural. Similarly, Homosexuals had the highest rating for Entitativity whereas Heterosexuals were rated as more natural.

Haslam et al. (2000) suggested that the interaction between Natural Kind and Entitativity could be related to the perception of category status. Precisely, more naturalized categories seem to have a higher status and to be less prone to stigma than those judged as more entitative. They also suggested that when making judgements of low status natural categories, people assume that their members are very similar to each other and have intrinsic properties. They also collected judgments of status for each category and were able to confirm these suggestions.

This aspect was accentuated with categories that are highly essentialised on both the entitative and the Natural Kind dimension since they appear more likely to be branded with low status. In consideration of their results, the argument that Haslam et al. (2000) advanced is that essentialist beliefs might be connected to stigma and stereotype, and that both Natural-Kind-ness and Entitativity determine which social categories are essentialised. They argued that the two factors constitute two different approaches to the phenomenon. On the one hand, Natural Kind beliefs seem to be more widely embraced amongst

individuals and indicate categories that are less easy to change. On the other hand, the within-domain substantial fluctuations in Entitativity beliefs seem to suggest that such categories could be modified more easily.

The attribution of Natural-Kind-ness to stigmatised groups also showed less variance amongst participants than for Entitativity. These aspects support the claim that a helpful way to reduce stigmatisation of certain groups would be to modify beliefs in their entitative attributes rather than in their Natural-Kind-ness. However, the interaction between the two dimensions does not necessarily mean that if one of the two dimensions is highly essentialised for a category this constitutes a sufficient condition for devaluing such a category.

3.3. Study 1

Study 1 was carried out in order to run a systematic investigation about some aspects of essentialist beliefs. First, my intention was to verify Haslam et al.'s (2000) findings on essentialism, particularly concerning the structure of essentialist beliefs and the occurrence of the two dimensions of Natural Kind and Entitativity.

Also, I wanted to explore whether the social environment influences essentialist beliefs, and whether the two-component structure identified for the US student sample would generalise to other western cultures outside the US. In fact, despite some acceptance of the fact that cultural differences produce differences in the way people think (e.g., Nisbett, 2003), current research has failed to investigate the role of culture in shaping essentialist beliefs about social categories.

Finally, a further purpose of the experiment was to examine the perception of the essentialism of those social categories that an individual feels

that he/she belongs to, compared to others. Thus, an additional question was included in the questionnaire asking respondents to identify the five categories with which they most identified themselves, with the aim of seeing whether people would hold stronger essentialist beliefs about categories with which they identify themselves.

Study 1 was built on Haslam et al.'s (2000) work and conducted with a sample of subjects from London. London is one of the most multicultural cities of the world, with large ethnic minority groups from all over the globe. Experience of being raised in a multicultural environment can be expected to have an effect on social categorisation and on beliefs about other groups. Particularly, some authors suggest that experiencing diversity can improve people's attitude towards minority groups (Crisp, 2010a; 2010b), and that multiculturalism plays a positive effect on intergroup relations (Richeson & Nussbaum, 2004).

Study 1's procedure was to replicate Haslam et al.'s (2000) study in order to a) verify the generality of the two-component structure, b) measure cultural changes in social categorisation, and c) investigate the extent to which self-identification influences essentialist beliefs on social categorisation. No significant changes were brought to the experiment overall, and the nine items of essentialism used in the original study were also employed in Study 1. However, to ensure relevance, a new list of social categories was created, with some slight difference from the original study, and an additional scale of self-evaluation was introduced in order to investigate the weight of category membership in social categorisation. The question about status was however not included.

The study, similarly to Study 2, was carried out through a web-based approach, reflecting an increasing trend in psychological research. Over the past years, there have been a number of studies aimed at validating reliability of this approach, among which was a study by Buchanan and Smith (1999). In the study the responses of 963 individuals who took part in a revised version of Gangestad & Snyder's (1985) self-monitoring questionnaire online, were compared to the responses of 224 individuals who did a paper and pen version of the same. The occurrence of similar psychometric properties in the web-based approach and in the paper-and-pen version was highlighted. Generally, most studies have confirmed the validity of web-based data collection, which is now an accepted method for psychological research.

3.3.1. Method

3.3.1.1. Participant

A sample of 123 participants (females = 88), mostly composed of students from various universities in London, took part in this study. The age ranged from 18 years to over 40, with 80 participants between 18 and 25 years. The questionnaire was put online and advertised as a study on social categories through leaflets distributed at City University and in other universities in London. No participants were excluded from the analysis.

3.3.1.2. Materials

Pre-test

A pre-test was carried out. Fifty first-year undergraduate students from City University were administered a brief questionnaire in which they were asked to list 20 social categories. In order to help them produce diverse

categories, they were invited to think about some social categories into which three people they know would fall. A pool of about 70 different categories was obtained. The categories obtained were grouped in domains that mirrored those used by Haslam et al. (2000), and retained on the basis of the highest frequency. The pre-test allowed collecting a range of social categories suitable for the English context, and which could also be representative of those investigated by Haslam et al. (2000).

Main Study

A total of 36 categories were selected, reflecting Haslam et al.'s (2000) list for most domains except for 5, which were not represented in the pool obtained in the pre-test and were as follows: Disease, Interest, Language, Psychiatric Disorder, and Region. Instead, Study 1 had a broader Personality Trait domain, which counted two sets of categories. For each domain, the two opposite categories with the highest rating were kept. See Table 3.1 for a comparison between the sets of categories used in the former study and in Study 1.

Domains	**Study 1**		**Haslam, et al. (2000)**	
Age groups	Old	Young	Old people	Young people
Dietary groups	Meat-eaters	Vegetarians	Meat-eaters	Vegetarians
Ethnic groups	British	Asians	Asians	Hispanics
Gender	Male	Female	Males	Females
Intelligence	Talented	Intelligent	Average	Smart
Interest groups			Movie buffs	Sports fan
Language groups			English speakers	Spanish speakers
Disabilities	Blind	Sighted	Blind people	Paraplegic
Diseases			AIDS patients	Cancer patients
Occupations	Students	Pensioners	Blue-collars	Doctors
Personality	Caring	Selfish	Extroverts	Introverts
	Shy	Friendly		
Physique	Attractive	Ugly	Attractive	Ugly
Physiques	Short	Tall	Large people	Small people
Political groups	Liberals	Conservatives	Liberals	Republicans
Psychological Disorders			Depressives	Schizophrenics
Races	Black	White	Black people	White people
Regions			Easterners	Mid-westerners
Religions	Atheists	Believers	Catholics	Jews
Sexual orientation	Heterosexuals	Homosexuals	Heterosexuals	Homosexuals
Education	Educated	Non-educated	Educated	Non-educated
Social Status	Married	Single	Married	Single
Social classes	Upper-class	Middle-class	Lower-class	Middle-class

Table 3.1. Sets of social categories used in Study 1 and in Haslam, Rothschild and Ernst (2000)

A ten-question survey was designed, with the nine measures of essentialism borrowed from Haslam et al. (2000) used as the first nine questions of the questionnaire; no changes from the former study were made on the measures. A definition for each measure was given at the top of each screen but the names of the measures were omitted. The task involved rating the 36 social categories along the nine measures of essentialism on a seven-point Likert scale.

The nine measures of essentialism were as follows: Discreteness, Necessity, Immutability, Stability, and Naturalness (which had previously been recorded as Natural Kind measures; see Table 3.2 for complete wording according to Haslam et al., 2000); Uniformity, Informativeness, Inherence, and Exclusivity (which had previously been recorded as Entitativity measures; see Table 3.3 for complete wording according to Haslam et al., 2000).

	NATURAL KIND DIMENSION
MEASURE	**DEFINITION**
Discreteness	Some categories have sharper boundaries than others. For some, membership is clear-cut, definite, and of an "either/ or" variety; people either belong to the category or they do not. For others, membership is more "fuzzy"; people belong to the category in varying degrees.
Necessity	Some categories have necessary features or characteristics; without these characteristics someone cannot be a category member. Other categories have many similarities, but no features are necessary for membership.
Immutability	Membership in some categories is easy to change; it is easy for members to become non-members. Membership in other categories is relatively immutable; it is difficult for category members to become non-members.
Stability	Some categories are more stable over time than others; they have always existed and their characteristics have not changed much throughout history. Other categories are less stable; their characteristics have changed substantially over time and they may not have always existed.
Naturalness	Some categories are more natural than others, whereas others are more artificial.

Table 3.2. Natural Kind measures according to Haslam et al. (2000)

	ENTITATIVITY DIMENSION
MEASURE	**DEFINITION**
Uniformity	Some categories contain members who are very similar to one another; they have many things in common. Members of these categories are relatively uniform. Other categories contain members who differ greatly from one another, and don't share many characteristics.
Informative-ness	Some categories allow people to make many judgments about their members; knowing that someone belongs to the category tells us a lot about that person. Other categories only allow a few judgments about their members; knowledge of membership is not very informative.
Inherence	Some categories have an underlying reality; although their members have similarities and differences on the surface, underneath they are basically the same. Other categories also have similarities and differences on the surface, but do not correspond to an underlying reality.
Exclusivity	Some categories do not allow their members to belong to other categories; belonging to such a category excludes a person from these other categories. On the other hand, some categories do not limit which other categories their members can belong to; they do not exclude a person from these categories.

Table 3.3. Entitativity measures according to Haslam et al. (2000)

A tenth item, called “Self-Categorisation Scale”, was introduced in order to investigate how membership in a social category affects beliefs in the essentialism of that category. This scale required the participants to indicate which five categories out of the list of 36 they felt would best describe them.

Through this scale, it would be possible to consider how people judged their own categories on the essentialism measures, and to make a comparison with the ratings of others-categories. The scale would help to clarify the extent to which membership in a category influences the perception of that category. My hypothesis was that the categories with which the participants identified themselves would receive more essentialist judgements on Natural-Kind-ness and less essentialist judgements on Entitativity (based on the link between higher status, higher naturalness, and lower Entitativity established by Haslam et al., 2000).

According to previous research (Cortes et al., 2005), people’s perception of their ingroup reflects the belief that the ingroup has more distinctive qualities than outgroups. Furthermore, Demoulin et al. (2006) carried out some studies on social categories where the membership was either forced or chosen. According to their definition, forced social categories (FSC) are the ones that can be explained as biologically based, like gender, ethnicity, and age. On the other hand, chosen social categories (CSC) correspond to non-biological social categories, such as profession, education, and political beliefs. Their study revealed that categories that belong to forced social categories may be considered higher in naturalness than categories that belong to chosen social categories (Demoulin et al., 2006).

Moreover, according to Rothbart and Taylor's (1992) definition, Natural Kind categories are independent from people's will. These categories are distinguished by a low internal coherence since their members are very different from each others. On the other hand, what Demoulin et al. (2006) call CSC correspond to entitative groups whose group members shared distinctive features even before joining the group. As an example, I could mention the fact that an individual may have certain political beliefs before joining a political party. The event of having certain characteristics in common (e.g., attitudes, beliefs) make members of entitative groups be attributed high levels of internal coherence and of inductive potential (Demoulin et al., 2006).

3.3.1.3. Procedure & Design

The questionnaire was completed online. Participants did not receive a monetary compensation but had the opportunity to enter a prize draw for Amazon vouchers. Students from City University could additionally gain one course credit.

On the first screen of the questionnaire, a brief explanation of the nature of the study was given. Also, the meaning of the term "social categories" was clarified and the structure of the study outlined, as follows:

"Welcome to this study on Social categories. Social categories are the way in which people can be divided into groups with labels. They are ways of categorizing or pigeon-holing people. I would like to investigate how people perceive common Social Categories and you will be asked to rate a number of categories on different scales.

Completing this questionnaire is entirely voluntary, and your data will be kept confidential and anonymous. Your name will not appear in the data.

There are no right or wrong answers to these questions but your answers are vital to the success of this study, so please think carefully before responding. There are 9 scales to judge all together, and there will be 2 pages of categories to judge for each scale. There is an additional page in which you are requested to indicate which categories you belong to. Thank you in advance for your help".

Prior to participation, participants' consent was collected along with some demographics (gender, age, ethnic group, nationality, and English proficiency).

The set of 36 categories was divided into 2 lists of 18 by picking up one category per domain in order to present only one category for each domain at the time. The order of presentation of the categories for the two lists of categories remained the same. From the third screen onwards, each screen showed the definition of one of the nine measures of essentialism, and the first set of 18 categories. The next screen would then show the same measure of essentialism with the second set of 18 categories. No time limit was set although an average of 30 minutes was given as an indication for completing the task, and a bar on top of the screen showed progress through the study.

The study was put online and remained available for a period of two months. Different versions of the questionnaire were constructed, and the two versions A (scales presented in ascending order from 1 to 9) and B (scales presented in descending order from 9 to 1) were given in an alternating succession by the system in order to have an average of 50% for each version at the end of the administration. In both version 1 and version 2, and as in Haslam et al.'s (2000) experiment, five items -- Scale 2 Uniformity, Scale 3

Informativeness, Scale 4 Naturalness, Scale 5 Immutability, and Scale 6 Stability -- were reverse-keyed. The system was set in order to allow participants to proceed to the next page only after rating all the items on the existing page.

The ratings for each scale are listed in Table 3.4.

Numeration	**MEASURE**		
1	**Discreteness**	1= clear-cut	7= fuzzy/indefinite
2	**Uniformity**	1= diverse/differing	7= uniform/similar
3	**Informative-ness**	1= few judgments/uninformative	7= many judgments/informative
4	**Naturalness**	1= artificial	7= natural
5	**Immutability**	1= easily changed/mutable	7= not easily changed/immutable
6	**Stability**	1= unstable over time/ change much	7= stable over time/change little
7	**Inherence**	1= underlying reality or sameness	7= non underlying reality or sameness
8	**Necessity**	1= necessary features or characteristics	7= non necessary features or characteristics
9	**Exclusivity**	1= exclude other categories	7= non exclude other categories

Table 3.4. Ratings for the nine measures of essentialism according to Haslam et al. (2000). The reverse keying is shown in the Table. Scales 1, and 7-9 had a rating of 1 as high for essentialism, and scales 2-6 had a rating of 7 as high.

On the final screen, participants were shown the 36 categories and were asked to check the five categories which they considered best described them, according to the instructions below:

"The following are the social categories that you have been asked to categorize in the previous nine scales. Please indicate which five of these categories you belong to by clicking in the box provided".

3.4. Results

The results will be presented and discussed in two sections. The first section presents the replication of the analysis conducted by Haslam et al. (2000) looking at the structure of essentialist beliefs by running a PCA on the nine measures of essentialism. In the second section the results of the data concerning self-identification with particular categories are discussed.

3.4.1. Structure of essentialist beliefs

One of the purposes of this study was to see whether the results from Haslam et al. (2000) would be replicated in a different social context. Thus, whereas the former study tested a sample of mid-western American students from a conservative college, Study 1's participants were sampled in London, which is the symbol of multiculturalism and where diversity is culturally valued and promoted.

As a first step into the analysis, the five reverse-scored scales were re-coded so that all scales had a score of 1 indicating high values, and 7 indicating low values for essentialism. The reliability for each of the 9 measures was then calculated, looking at the inter-correlation of raters' judgements across categories. For each measure separately, the ratings given to the 36 categories

were compared across the group of participants to calculate the reliability of the mean ratings for each category. Good reliability (Cronbach's $\alpha > .8$) was found for all measures, as shown in Table 3.5.

	Reliability	**Mean**		**Std. Dev.**	**Communalities**
Discreteness	.971	3.21		0.78	.697
Uniformity	.830	4.77		0.33	.747
Informativeness	.940	4.21		0.56	.768
Naturalness	.979	3.39		0.95	.864
Immutability	.986	3.72		1.15	.638
Stability	.953	3.67		0.66	.769
Inherence	.858	4.13		0.35	.844
Necessity	.960	3.16		0.67	.880
Exclusivity	.843	4.62		0.32	.664

Table 3.5. Descriptive statistics for the nine measures of essentialism

Given the high levels of reliability, the participant data were averaged to provide mean ratings for each of the 36 categories on each of the 9 measures. Analysis of these means showed some strong correlations amongst some of the measures of essentialism, and some weak ones (see Table 3.6).

Scales	Dis	Uni	Inf	Nat	Imm	Sta	Inh	Nec
Dis								
Uni	.076							
Inf	-.486**	.459**						
Nat	.498**	.333*	-.691**					
Imm	.425**	-.079	-.381*	.775**				
Sta	.683**	-.115	-.666**	.771**	.617**			
Inh	.532**	.557**	.124	.316	.473**	.353*		
Nec	.802**	0.82	-.488**	.715**	.714**	.638**	.631**	
Exc	.454**	.451**	.075	.016	.214	.112	.613**	.486**

Table 3.6. Correlations between the measures of essentialism. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

A Principal Component Analysis (PCA) was run. The PCA confirmed a two-factor structure (see a scree plot in Figure 3.1). 76% of the total variance was explained by two factors. Additional factors each accounted for ≤ 8.2% of the total variance.

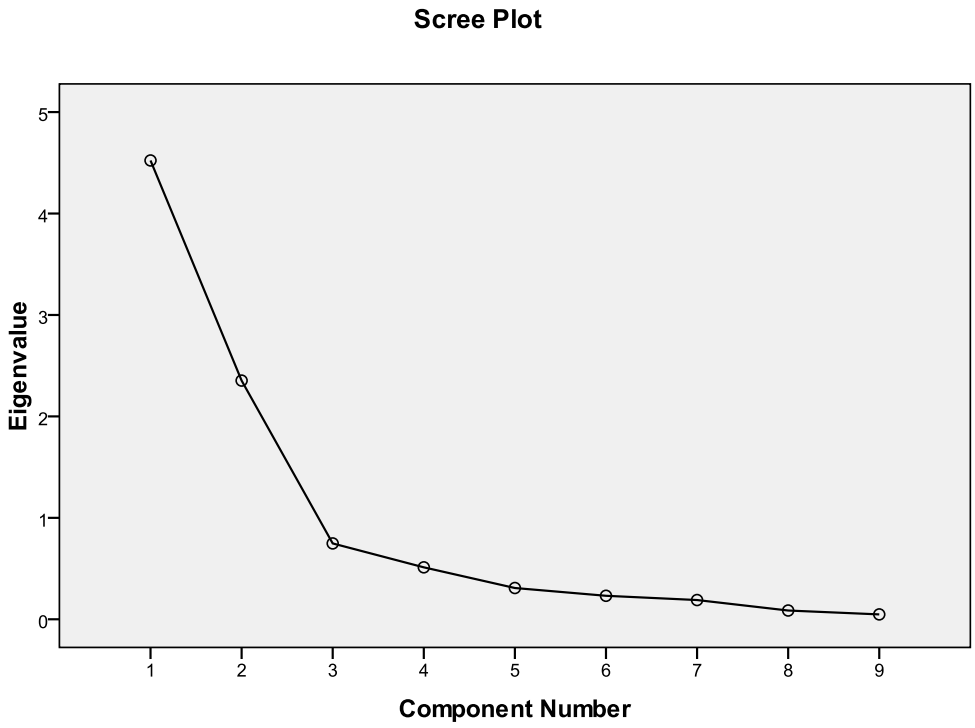

Figure 3.1. Factor Extraction of Factor 1 and Factor 2

The first factor, identified as Natural-Kind-ness, included Naturalness, Stability, Immutability, Necessity, and Discreteness. The second factor, identified as Entitativity, grouped together Uniformity, Exclusivity, and Inherence (see Figure 3.2 for the factor loadings, and Table 3.7 for the relative importance of Factor 1 and Factor 2, based on the Rotated Component Matrix). Unexpectedly the last measure, Informativeness, was observed primarily to load negatively on the Natural Kind dimension rather than positively on Entitativity as Haslam et al. (2000) had found.

According to the results, categories that are perceived as natural are seen as biologically based, stable over time and unrelated to human creations as they

are believed to have always existed and to have shown little changes through history. Also, they are attributed strong boundaries that differentiate category members from non-members, and necessitate some defining features without which their members would not be considered as such.

On the other hand, categories that are regarded as entitative are seen as more exclusive, to the extent that membership to a certain category is believed to exclude individuals from belonging to other categories. Moreover, members of entitative categories are thought to share several characteristics amongst them, making them appear uniform and similar in their external appearance as well as in their inner traits. This account seems to confirm the findings of Haslam et al. (2000) as well as some previous results (see Kripke, 1980; Atran, 1990).

	Component 1	Component 2
Naturalness	.925	
Stability	.875	
Necessity	.826	.455
Informativeness	-.791	.377
Immutability	.774	
Discreteness	.728	.409
Inherence	.348	.850
Uniformity	-.298	.811
Exclusivity		.800
Eigen Values	4.516	2.355
% of Variance	47.690	28.647
Sum of Variance	76.337	

Table 3.7. Relative importance of Factor 1 and Factor 2, based on the Rotated Component Matrix. Loadings below .2 have been suppressed

However, some dissimilarities with the former study were also highlighted by the results, with the main difference be represented by the behaviour shown by Informativeness. Although results by Haslam et al. (2000) individuated Informativeness as a component of Entitativity, Study 1 showed that the measure did not load on Entitativity but was instead negatively correlated with the Natural Kind factor. This can be observed in Figure 3.2.

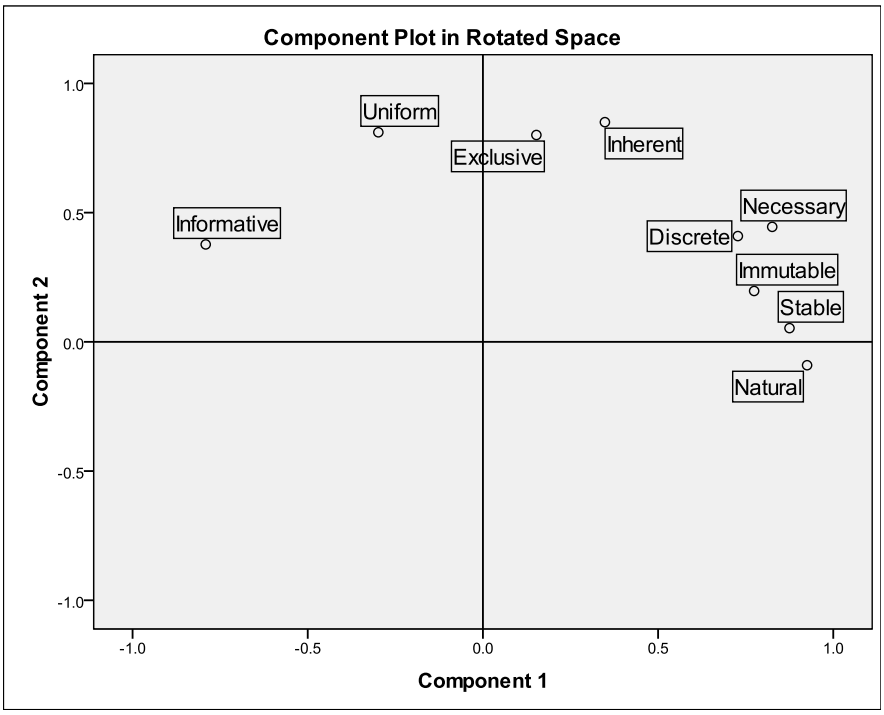

Figure 3.2. Factor Loadings for Factor 1 and Factor 2, Study 1

Figure 3.2 shows the factor loadings for the data as a loading plot with Component 1 as the x axis, and Component 2 as the y axis. The figure illustrates the differences with the findings of the former study. According to my results, the dimension of Natural Kind is now composed of five measures of essentialism, whereas the dimension of Entitativity is composed of three measures. Respectively, the four measures of Natural Kind are observed clustering together on the x axis to form Factor 1, whereas the three measures of Entitativity cluster on the y axis to form Factor 2. The dimension of Informativeness loads apart on the x axis and is negatively correlated with Natural-Kind-ness (for comparison, see the cluster of factors obtained by Haslam et al., 2000, shown in Figure 3.3). The pattern is remarkably similar for most of the measures except for Informativeness.

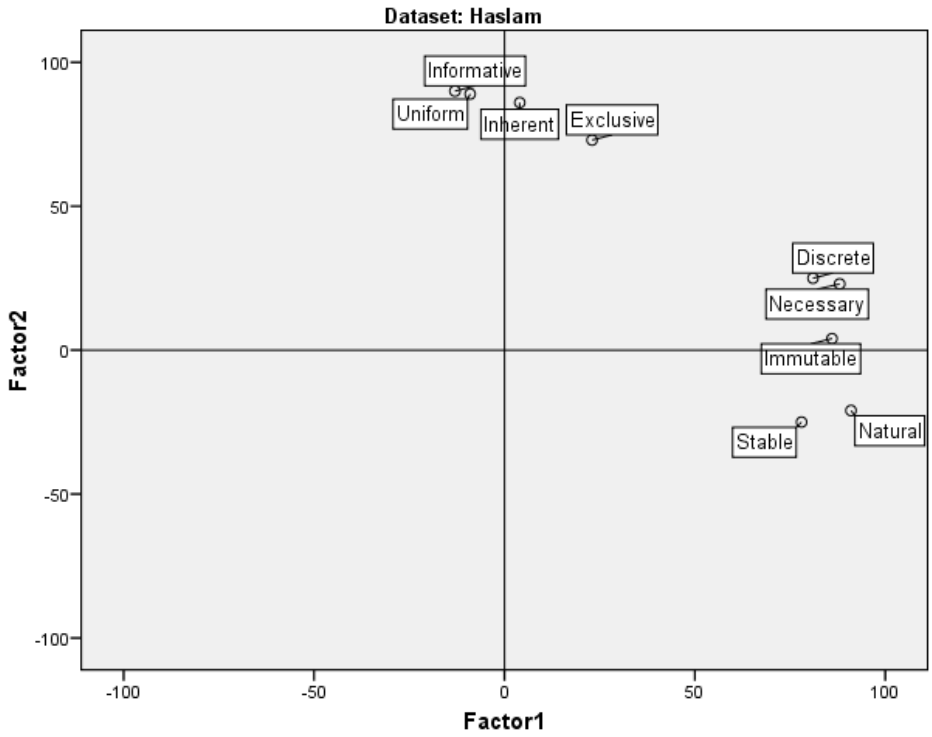

Figure 3.3. Factor Loadings for Factor 1 and Factor 2 (Haslam et al., 2000)

In order to explore the results in more depth and to see which categories are treated as more natural and which as more entitative, a factor score for each category was calculated. These factor scores are illustrated in Table 3.8, and the location of the categories on the Entitativity and Natural Kind axes are shown in Figure 3.4, where it can be seen that the domains high on Natural-Kind-ness are Gender (Female, and Male), Race (Black, and White), Height (Short, and Tall), and Age (Young, and Old).

On the other hand, some categories scored particularly high on Entitativity, like Political Groups (Conservative, and Liberal). The highest score on Entitativity was given to Upper-Class, whereas the same-domain category (Middle-Class) received a lower score. Some further within-domain discrepancies were also observed.

In particular, the Sexual Orientation domain had different scores for Homosexuals, which loaded under Entitativity, and for Heterosexuals, which loaded under Natural-Kind-ness. Similarly, Dietary Groups had Vegetarian scoring as more entitative than Meat-Eater. All the Personality Trait categories appeared negatively correlated with both Entitativity and Natural-Kind-ness, whereas all Physical Attributes scored positive for Natural-Kind-ness.

The within-domain differences observed by Haslam et al. (2000) for the Race domain --with Blacks scoring high on Entitativity -- were not replicated by Study 1. Instead, the results showed similar ratings for Whites and Blacks, which were both high for Natural-Kind-ness. Another interesting difference from the former study was observed for Homosexuals, indicated as highly entitative in the former study and which, despite scoring positive in Entitativity in the present study, received less extreme ratings. Finally, some categories showed similar scores with the former study, with the most similar ones being Middle-Class, Profession, Age, and Physical Appearances.

Domain	Category	Natural Kind	Entitativity
Age	Old	.81	.62
	Young	.51	.52
Diet	Vegetarian	-.10	.85
	Meat-eater	.44	-.20
Ethnic groups	British	-.14	.11
	Asian	1.04	.46
Gender	Female	1.27	1.56
	Male	1.72	.83
Intelligence	Talented	-.58	-1.73
	Intelligent	-.62	-.60
Disabilities	Sighted	1.48	-.90
	Blind	1.40	.85
Occupation	Pensioner	.09	.72
	Student	-.79	-.60
Personality	Selfish	-.96	-.06
	Caring	-.46	-1.19
	Shy	-.45	-1.04
	Friendly	-.71	-1.03
Physical appearance	Attractive	-.99	-.79
	Ugly	-.31	-1.95
Physiques	Short	1.33	-.95
	Tall	1.79	-1.27
Political groups	Liberal	-1.60	.35
	Conservative	-1.33	1.26
Races	Black	1.47	.38
	White	1.35	.13
Religion	Believer	-.89	.69
	Atheist	-.53	.87
Sexual orientation	Homosexual	-.09	.99
	Heterosexual	.75	-.68
Education	Educated	-.87	-.07
	Uneducated	-1.36	-.24
Marital Status	Married	-.22	.09
	Single	-.36	-1.37
Social Class	Middle-Class	-1.00	.73
	Upper-class	-1.07	2.64

Table 3.8. Factor scores and mean ratings of the social categories, by domain

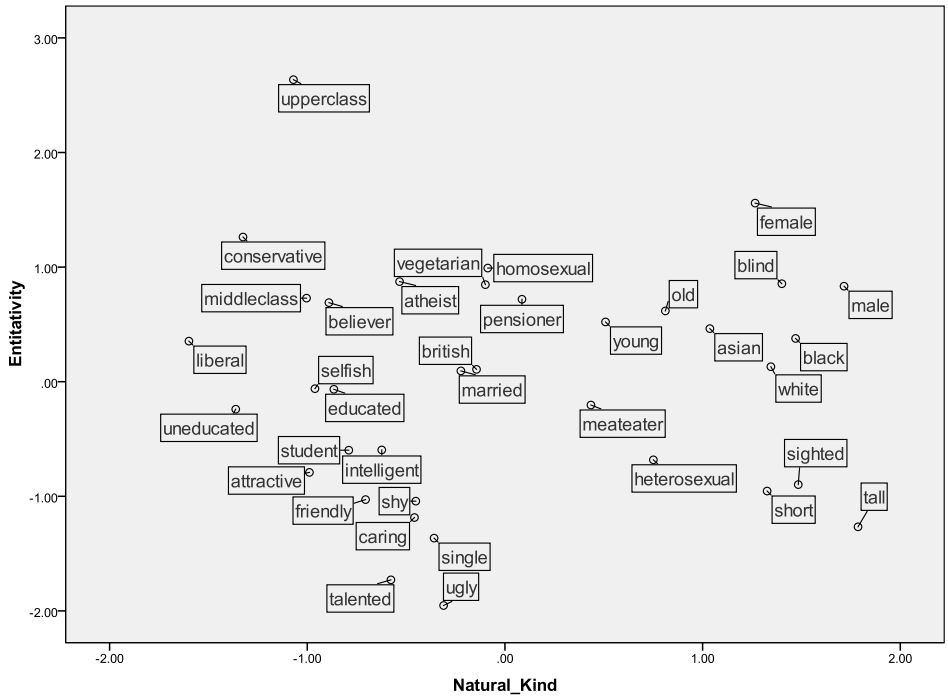

Figure 3.4. Location of all categories along Natural Kind and Entitativity Components

As previously mentioned, the behaviour of Informativeness was different than in the former investigation. In fact, while Informativeness had formerly been individuated as a component of Entitativity, in Study 1 it correlated negatively with Natural-Kind-ness. In order to fully appreciate this result, the mean score for each category for Informativeness was plotted against the factor score for Natural-Kind-ness. Figure 3.5 shows which categories are considered more or less informative. The categories low in Informativeness are the biological ones, like Gender (Female and Male); Height (Tall and Short); Race (Black and White); Disabilities (Blind and Sighted); Age (Old and Young); Ethnic Groups (Asian); Sexual Orientation (Homosexual); and Dietary Groups (Meat-Eaters).

On the other hand, Upper-Class scored particularly high on the scale, suggesting that our participants regard it as very informative of what its members are.

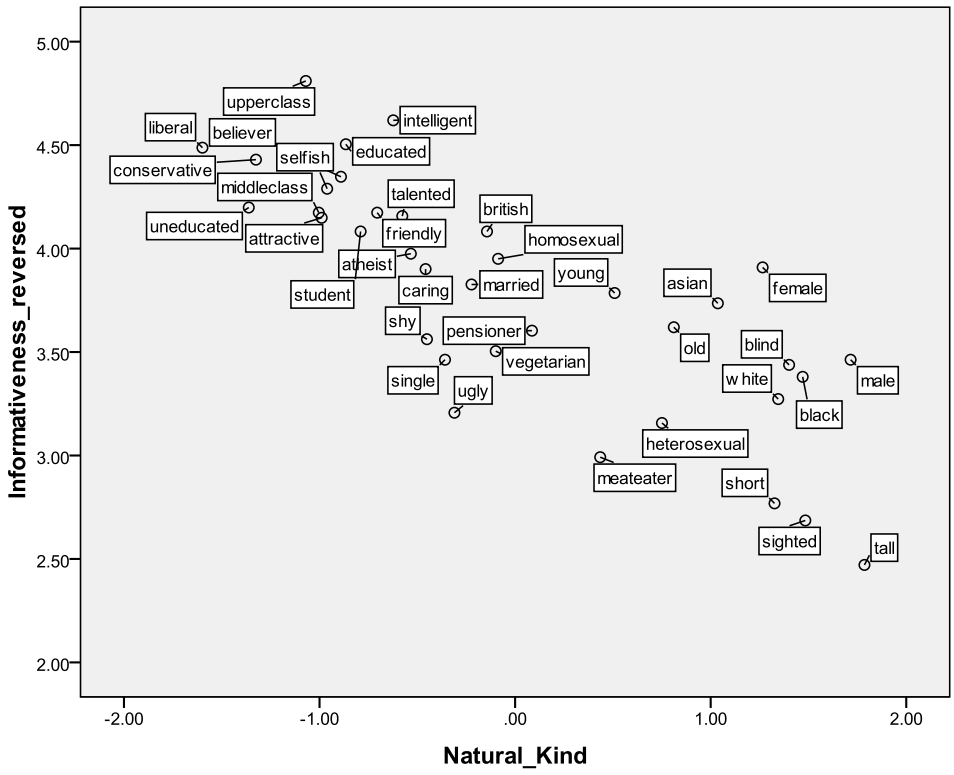

Figure 3.5. Location of categories for Informativeness along Factor 1 and Factor 2

The result obtained for Informativeness represents an interesting ground for discussion. As observed in the data, categories such as Upper-Class, Liberal, Believer, Conservative, and Selfish scored particularly high on Informativeness, whereas categories like Short, Tall, Sighted, Meat-Eater, and Heterosexual had a much lower score. This seems to suggest that for our sample of participants, Natural Kind categories in general tend not to be informative of individuals, and this is particularly true for categories related to Physical Appearance, Sexual

Orientation, and Diet. This result is consistent with the multi-cultural social context of students in London. On the other hand, non-biological categories tended to be perceived as informative, and especially those related to Class (Upper-Class), Political Orientation (Liberal, and Conservative), Religious Beliefs (Believer), and Personality Traits (Selfish).

To summarise, it can be argued that individuals from a multicultural environment do not perceive biological traits as providing enough information to make judgments about individuals. Instead, they considered non-biological categories as more informative about somebody's makeup. This result contrasts with Haslam et al.'s (2000) study where biological categories such as Race and Sexual Orientation were seen as informative. In the context of a largely young white population, it may be enough to be an outsider on any of these biological categories for the categorization to carry information.

3.4.2. Discussion

Before proceeding to the discussion of the results, the reader is reminded that social categories were not identical in the two studies (social domains overlapped to 85%, and individual social categories overlapped to 40%). Thus, comparisons with Haslam et al. (2000) should be understood with this in mind.

The results of the first part of the investigation led to some interesting discoveries. First of all, the occurrence of a two-factor structure -- as suggested by Haslam et al. (2000) -- was confirmed with a sample of participants selected from a multicultural context. Despite some differences observed in the composition of the two factors, this finding suggests the opportunity of some generalisation across western cultures and could eventually provide the basis for designing a scale for the measurement of essentialist beliefs (see Chapter 5).

It is interesting to note that items high on Natural-Kind-ness generally correspond to forced categories, whereas those low on Natural-Kind-ness generally correspond to chosen categories. One possible explanation of the association of low Natural-Kind-ness with informativeness is the idea that individuals willingly chose to belong in those categories. This hypothesis is considered a possibility, although it may prove wrong in the light of the scores observed for some categories (e.g. race categories) that were associated with high informativeness in Haslam et al. (2000), but not in study 1.

Another interesting result was highlighted by the comparison of the scores for the individual social categories between the former study and the present study. This comparison revealed in detail the effect of cultural contexts in the perception of biological and non-biological categories. For example, Study 1 participants' ratings testified the positive effect of a multicultural environment in the perception of races since no differences in the perceived Entitativity between Black and Whites were observed, with both categories scoring high on Natural-Kind-ness. The same effect was observed for the Homosexual category, which had been identified as prone to stigmatisation in the former study, and which in our study showed a much lower score on Entitativity. A fuller discussion will follow the results of the second part of the investigation.

3.5. Investigation 2: Essentialism and self-identification

This section presents the design, procedure, and results of the second part of the investigation, which was concerned with the self-identification scale. Participants were asked at the end of the survey to choose the five categories that best described themselves. The frequencies and percentages for the chosen categories are illustrated in Table 3.9. As shown in the table, 18 categories were

chosen by at least 12 participants (12 participants represents roughly the 10% of the total).

Category	Freq.	%	Category	Freq.	%
Old	0	0%	Young	56	46%
Attractive	10	8%	Ugly	0	0%
Upper-class	1	1%	**Middle-class**	**22**	**18%**
Meat-eater	**22**	**18%**	**Vegetarian**	**18**	**15%**
Blind	0	0%	**Sighted**	**26**	**21%**
British	**25**	**20%**	**Asian**	**27**	**22%**
Female	**69**	**56%**	**Male**	**16**	**13%**
Talented	7	6%	**Intelligent**	**26**	**21%**
Student	**59**	**48%**	Pensioner	0	0%
Caring	9	7%	Selfish	6	5%
Shy	4	3%	**Friendly**	**34**	**28%**
Short	5	4%	Tall	9	7%
Liberal	9	7%	Conservative	3	2%
White	**33**	**27%**	Black	3	2%
Atheist	**12**	**10%**	**Believer**	**17**	**14%**
Homosexual	4	3%	**Heterosexual**	**25**	**20%**
Married	**10**	**8%**	**Single**	**15**	**12%**
Educated	**33**	**27%**	Uneducated	0	0%

Table 3.9. Frequencies of self-categories as chosen by participants. The categories in bold show the categories that were chosen by at least 12 participants (10% of the total)

The data were analysed in two different ways. The Analysis by items considered the mean ratings for categories that were chosen by at least 12 people (18 categories in total). The Analysis by participants considered all categories.

Analysis by Items

For the 18 categories chosen by at least 12 people, mean ratings of each category on each scale were calculated for the subset of participants who identified themselves with the category (Identifiers) and for the remaining subset of participants who did not (Non-Identifiers).

Table 3.10 shows the mean ratings for Identifiers and Non-identifiers for each of the nine measures, averaged over the 18 categories, and the significance of the difference between the means for identifiers and for non-identifiers (paired t-test across the 18 categories). In the table low values indicate higher ratings of essentialism. Using a Bonferroni correction for nine tests, alpha was set at .0055.

As we can observe from the table, three scales showed a significant difference, all of them in the direction of people judging their identified categories as more essential: these were Discreteness, Naturalness, and Stability. Necessity was marginally significant. These scales all belong to the Natural Kind domain. It is remarkable that although only three scales were significant, people's own categories were rated consistently higher on essentialism.

To confirm this pattern, the measures were collapsed according to Haslam et al.' s (2000) two-factor solution by averaging the five Natural Kind measures, and the four Entitativity measures into two summary scales. Table 3.10 shows that there was a small but highly significant tendency for people to judge their own categories as higher on Natural-Kind-ness, but no difference in ratings of Entitativity.

Measure	Identifier	Non-Id	Paired t	Significance
Discreteness	2.69	3.09	4.52*	<.001
Uniformity	4.83	4.81	0.19	N.S.
Informativeness	4.06	4.25	1.29	N.S.
Naturalness	3.02	3.37	3.72*	<.005
Immutability	4.29	4.24	0.60	N.S.
Stability	3.25	3.59	5.05*	<.001
Inherence	3.97	4.06	1.31	N.S.
Necessity	2.87	3.11	2.63	(<.05)
Exclusivity	4.55	4.57	0.22	N.S.
Natural Kind	**3.22**	**3.48**	**5.63***	**<.001**
Entitativity	**4.35**	**4.42**	**1.09**	**N.S.**

Table 3.10. Item analysis. For each measure, the mean rating for Self-Identifiers (ID) and Non-identifiers (Non-id) for the 18 categories with at least 12 people identifying with them. Lower values indicate more essentialist responses

Analysis by participants:

A second way of analysing the data looked at the mean of each participant's ratings of their own 5 identified categories on each scale, and compared this with the mean of the rest of the group's ratings of the same 5 categories on that scale (results for each scale are shown in Table 3.11).

Measure	Identifier	Non-Id	Paired t	Significance
Discreteness	2.80	3.00	2.49	(< .05)
Uniformity	4.82	4.84	0.13	N.S.
Informativeness	4.10	4.20	1.31	N.S.
Naturalness	3.00	3.44	4.44*	<.001
Immutability	4.35	4.27	1.04	N.S.
Stability	3.38	3.59	2.12	(< .05)
Inherence	3.97	4.07	0.81	N.S.
Necessity	2.91	3.07	1.62	N.S.
Exclusivity	4.61	4.63	0.10	N.S.

Table 3.11. Participant analysis. For each measure, the mean rating given by an individual to the five categories with which they identified (Own) is compared to the mean rating given by the rest of the group to those five categories (Group). Lower values indicate more essentialist responses

Although all scales showed a positive effect with Identifiers rating their own categories as more essential, only Naturalness was significant using the Bonferroni adjusted alpha of .0055. As before, the scales related to Natural Kind status showed a larger effect. Naturalness was significant with the Bonferroni correction, while Discreteness and Stability were marginally significant ($p < .05$). Consistently with the previous statistical analysis, it was observed that the measures of essentialism that define the Natural Kind dimension were slightly but significantly more essentialised for the categories with which people identify, while the measures of the Entitativity dimension showed no effect. Both

analyses lead to the same conclusion, showing that Natural Kind is enhanced for one's own categories.

3.6. General Discussion

The general objective of the present study was to investigate two questions. First, I looked at the occurrence of the two-factor structure for essentialist beliefs discussed by Haslam et al. (2000) in a different socio-cultural environment. Second, I looked at the effect of individual identification with a set of categories on the perception of how essential the categories are.

The findings of the first part of the study partly confirmed the earlier study, especially in the occurrence of a two-dimension structure of essentialist beliefs. However, some differences were also highlighted. In particular, amongst the nine measures of psychological essentialism one of them (Informativeness) behaved very differently, suggesting that cultural contexts may play a role in the structure of essentialist beliefs. Some differences were highlighted in the perception of single categories, especially for groups that had been observed in earlier studies to be prone to stigmatisation, such as blacks and homosexuals (Haslam et al., 2000).

Generally, it seems that belonging to a multicultural environment may lead to the "naturalisation" of some social groups -- which consists in the attribution of natural characteristics to non-biological categories -- a process which earlier research has linked to the attribution of a higher status. In fact, Haslam et al. (2000) observed that some of the categories that were attributed higher Entitativity seem to be particularly prone to devaluation, as opposed to the categories that were attributed higher naturalness. In light of their results,

Haslam et al. (2000) argued that naturalness could be linked to the attribution of a higher status than Entitativity.

The results allow the drawing of some conclusions and suggest that whereas for a middle-class white American student some biological categories are associated with characteristics that are more typical of the Entitativity domain this does not appear to be true for the London sample, which did not associate biological categories with entitative factors.

Certainly, this study represents a step further into the understanding of psychological essentialism. The findings of the second part of the study provide some useful material about the role of category membership in the way individuals perceive their own and other categories. An important aspect of the results is constituted by the fact that perceived naturalness increases for one's own categories. Across the two analyses, the categories that people identified with were considered by those individuals to be more natural, more discrete and more stable.

For example the 68 participants who identified with the category Female rated being female at an average of 2.02 on the Natural Kind scales, compared to an average rating 2.43 given by other participants. At the same time, the 15 who self-identified as Males, rated being male as more natural (1.65) than did other participants (2.13). The categories that we see ourselves as belonging to tend to be those that we think of as discrete, natural, and stable. Those same categories are seen to be less natural by people who do not identify with them. By linking the findings from the two parts of the study, we can appreciate how they support each other. In fact, this appears especially true in light of the fact that an enhanced naturalness would correspond to the attribution of a higher status to

one's own categories. The literature illustrates the power of the ingroup bias, according to which individuals attribute more positive traits to ingroup members.

According to Tajfel (1981), knowledge of membership to a certain group is profoundly connected to the emotional significance of the membership itself, and self identity is built upon this significance. Thus, since individuals' self-esteem is drawn from their group memberships to a great extent, they tend to attribute a higher status to their own categories and to show a high ingroup bias (Castano & Yzerbyt, 1998). Study 1's results showed that a higher level of naturalness is attributed to one's own categories. If we see this result in the light of the concept above, it could be argued that naturalising a category could represent a mechanism of reinforcement of the status of that category.

If we consider how the social categories in Study 1 have scored, it would be possible to sketch out a picture about how Study 1's participants attributed the two forms of essentialism to the categories. For example, the domain of racial categories scored very low in Entitativity and high in Natural-Kind-ness, as did the domains of Age and Physical Traits. Likewise, in the present study, categories such as Blacks and Homosexuals were attributed higher levels of naturalness than in the former study by Haslam et al. (2000). This result could be due to the impact of the constant exposure to other ethnicities and cultures that occurs in multicultural contexts, which appear to reduce the perception of Entitativity of categories in favour of their naturalness, possibly improving their status in the eyes of the perceiver.

However, the fact that a number of our participants are likely to have been from such minority groups themselves should also be considered. In fact,

despite the fact that only four people self-identified as Homosexual and 3 as Black, there were 27 who self-identified as Asian.

The replication of Haslam et al. (2000) constitutes a first step into the understanding of the extent to which essentialist beliefs are affected by the cultural context. In psychology, there is a broad array of literature on cultural differences, most of which has been produced by research in cultural psychology. Cultural psychology's main principle is that individuals are strongly affected by their culture. As Heine and Ruby claim (2010), every detail of an individual's life depends upon what they have learnt from the culture they belong to, including life choices, behaviours, relationships, and values. Cross-cultural studies aim at highlighting differences in behaviours and beliefs among individuals who belong to different cultural backgrounds (Brislin, 1976).

Study 1 is a correlational design study whose aim was to highlight the occurrence of cultural differences between London participants and the population used in Haslam et al. (2000). In particular, one of its purposes was to see whether cultural differences may lead to differences in an individual's essentialist beliefs.

In this section, it has been discussed how some differences have been observed in the way Study 1 participants perceived some social categories compared to how those same categories had been perceived in Haslam et al. (2000). Some of these differences have been linked to multi-cultural factors emerging from the great cultural diversity that defines Study 1's participants.

In comparison to Haslam et al. (2000), whose sample was composed of a majority of female individuals from a conservative mid-western American college, in Study 1 56 out of 123 participants identified themselves as belonging

to non-British cultural backgrounds. This represents nearly half of the total of participants and allows some speculations about the role that cultural differences may play in essentialist beliefs.

However, other factors have also been considered. For instance, individuals tested in Study 1 represent a broader demographic than Haslam et al.'s (2000) sample, and more general US-UK cross-cultural differences, including the influence of different social policies that are adopted in the two countries, should also be considered. Also, individuals' political views have been recognised as a powerful lens in somebody's beliefs and perceptions towards some social classes (Cohen, 2003). Moreover, other strong social and cultural factors such as school and university curricula, media and television exposure (McQuail, 1979), are to be acknowledged in the way they may influence an individual's essentialist beliefs.

On the basis of the differences and similarities between the former study and Study 1, I decided to run a further study in a different social context. This would bring the opportunity to explore in more depth some of the instances previously observed with a sample of participants from a traditional and mono-cultural environment. The new investigation -- Study 2 -- set out to see whether subjects from a traditional context would generate a structure similar to Haslam et al. (2000), and also whether stronger essentialist responses for own-categories would be produced. The findings of Study 2 are presented in Chapter 4. Also, an in-depth discussion and comparison of the results from the two studies is provided in the general discussion section at the end of Chapter 4.

Chapter 4:

Essentialist beliefs about social categories: A comparison study in Sardinia

4.1. Introduction

This chapter presents the second empirical investigation that was conducted for this thesis. Study 2, which was a replication of Study 1, was run on a sample of subjects from a traditional socio-cultural background.

Results of Study 1 confirmed the occurrence of the two dimensions of Natural Kind and Entitativity described by Haslam et al. (2000) with a sample of subjects from a multicultural context. Also, the overall structure of essentialist beliefs was similar to the original study for most of the essentialism measures with the only exception of Informativeness, and some differences were observed in the way single categories were essentialised. According to the Principal Component Analysis, Entitativity included Uniformity, Exclusivity, and Inherence, and Natural Kind included Naturalness, Stability, Immutability, Necessity, and Discreteness.

According to table 3.7, Informativeness was weakly positive for Factor 2 rather than strongly positive as expected. The strong negative loading on Natural-Kind-ness was surprising, as it was near zero in Haslam et al. (2000). This result indicated that for my sample of subjects belonging to Natural Kind categories involves being uninformative. The differences in the ratings of the single items concerned mostly categories such as Homosexuals and Blacks, which received more "natural" ratings than in the original study. This showed that categories that are biological or considered as such are perceived as neither entitative nor informative by a multi-cultural sample of subjects.

In consideration of this result, my hypothesis is that the differences between the two studies in relation to the dimension of Informativeness and to the scores of the single social categories (e.g., Sexual Orientation, and Race)

may be due to an effect of the social environment, and that a greater level of interaction and exposure to different social groups may change the perception of them. The aim of the experiment was also to see whether the two-dimension pattern in the structure of essentialist beliefs can be generalised to a number of western cultures. Finally, since Haslam et al.'s (2000) study tested a small number of subjects (N = 40), the present study aimed at providing further strength to the results. Study 2 was run in Sardinia, which is an Italian region with a special statute and an island, thus benefits from natural physical boundaries that decrease contacts between the locals and the non-locals. Section 4.2 describes the anatomy and character of the Sardinian population and outlines some key historical events that have occurred through the centuries in Sardinia. These events have been crucial in generating certain attitudes and beliefs towards the non-locals among Sardinians.

Empirical evidence about the effect of multiculturalism is summarised in section 4.3, and a definition of multiculturalism is given at the beginning of the section. The findings of Study 1 suggested that differences in people's essentialist beliefs may be due to the effect of socio-cultural contexts, and that multiculturalism may be linked to a lower level of essentialism towards certain social groups, in particular concerning the entitative factor. The literature shows that a greater contact with different cultures favours openness and positive attitudes towards them (Allport 1954), and that this effect increases if the contact happens at an interpersonal level (Brewer & Miller, 1984). Section 4.4 describes Study 2's methodology and results. Similarly to Study 1, the first part of the study investigated essentialist beliefs about social categories and the second part investigated self-categories.

My hypothesis for the investigation on self-categories was that a mono-cultural sample of subjects would essentialise own categories in a more extreme fashion than subjects from a multicultural sample. At the end of the chapter a joint discussion of the results will summarise similarities and differences between Study 1 and 2.

4.2. Sardinia: a land between myth and modernity

The aim of this section is to outline some of the most relevant events that have occurred throughout history in Sardinia, and their impact on the Sardinian population. This should clarify the cultural makeup of Sardinians and their attitude towards others, and especially towards non-Sardinians. Sardinia is a land that has caught the imagination of its visitors, and about which many legends and poems have been written.

"But neither does time exist without change; for when the state of our own minds does not change at all, or I have not noticed its changing, I do not realize that time has elapsed, any more than those who are fabled to sleep among the heroes in Sardinia do when they are awakened".

(Aristotle, Physics, Book IV, chapter 11)

"The unruly Sherden whom no one had ever known how to combat, they came boldly sailing in their warships from the midst of the sea, none being able to withstand them".

(Kitchen, 1982; pp.40-41)

Land of rare beauty, untouched by the course of time, populated by savages... The two quotes above both summarise outsiders' beliefs about Sardinians. As mentioned by Aristotle, according to an ancient myth Sardinia had been colonised by the sons of Heracles and of Tespiades. When the heroes

died, their body remained intact to the point that they appeared asleep. The legend wanted that the Sardinians who fall asleep next to the heroes' graves would fall into such a deep sleep that time for them would stop forever. Nevertheless, beside this grandiose and legendary aura, Sardinia has long been considered savage and ungovernable (Edwardes, 1889). Sometimes it has been referred to as a land inhabited by uncivilized people who aspired to be independent from the Italian Government in order to be free from its rules.

Sardinia is an Italian region, the second largest island in the Mediterranean Sea, and has a special statute that recognises its economic and socio-cultural differences from the other Italian regions. Its population density is the lowest for the national average and its main settlements are currently concentrated around its capital city on the South of the island, Cagliari, and around its second largest city on the North of the island, Sassari.

However, this geography of settlements represents a recent trend started when tourism became one of the biggest industries in the island. In fact, until the end of 19th century, its population was mostly concentrated in the inner part of the island. This was due to the dangerousness of the coastal line following repeated and devastating invasions carried out over the centuries from the ninth century AD, among which the most infamous ones had been perpetrated by the "Mori", the pirates from Andalucía, Morocco, and Tunisia. As a consequence, the coastal line became dangerous and the settlements on the south-western coastal side started to be designed in a way that they would remain hidden from the seaside.

The geography of the settlements in the island introduces to one of the most interesting myths about Sardinia, which says that Sardinians "turn their

back to the sea", lack navigation skills, and have long ignored the potentialities of trade and wealth coming from the sea, basing their economy on pastoral and agricultural activities instead. Nonetheless, history proves the myth wrong. In fact, a few thousand years ago (in the Bronze Age) the ancient Sardinian population -- identified with the Shardana, a tribe of the Sea People -- maintained close commercial links with the civilisations bordering the Mediterranean Sea. Amongst these were the Egyptians -- that mentioned the Sardinians in their hieroglyphics-- the Greeks, and the Mycenaeans (Kitchen, 1982). Also, from the late Seventeenth century, the farmers that inhabited the north-eastern region of the island, Gallura, started to trade their goods through the sea with the benefit of not having to pay custom duties (Salice, in press).

From the beginning of the Seventeenth century, and under the Kingdom of the Savoia family, Sardinia became a land of immigration for some populations. Among these populations were the inhabitants of the Tunisian coastal town of Tabarka that settled in the South-West of the island, and a colony of Greeks, who were granted the opportunity to move to the North of the island. However, these migratory flows often decided from above were rarely approved by the local population, as testified by the records. In some cases fights between the native populations and the migrants occurred, leading to episodes of tragic violence and murder that made of the island one of the most violent places of that period in Europe (Salice, in press).

Later in history, at the end of the World War II, the newly founded Italian Republic was among the losers of the war. Thus, in order to pay off its debts to America, the government allowed the American army to use part of the Sardinian land for military purposes. Again, this produced discontent and even

occasional revolts, which most remembered one is the Revolt of Pratobello, where the whole population of a village from the inner region resisted to the Italian army that aimed to transform a grazing ground into a military base.

This brief outline of foreign and domestic dominations summarises some meaningful events that contributed to shape the attitudes of Sardinians towards the outsiders. The lack of trust towards both foreigners and the government that had been cultivated over time led to the development of a peculiar way to deal with offences in the island, where a self-regulation culture developed under the rules of "Codice Barbaricino" (an unwritten law originating from the inner region of Sardinia, Barbagia). According to Codice Barbaricino, an offence to one's own honour and/or properties has to be punished through personal revenge. This culture dominated for centuries and caused difficulties to rule Sardinia under the common law when the country unified. Although this phenomenon is now of small scale, in some parts of the island self-regulation methods are still employed, causing feuds over land and honour (Salice, in press).

Through history, literates and politicians have tried to define Sardinia as a land of immutability and traditions. Nonetheless, despite a bivalent relationship with the sea and a shadow of suspiciousness and closeness towards the others, the emergence of a new political class in the 18th century made of Sardinia a land that aspired to become part of a global vision of Europe. Also, the process of centralisation of the political regulation that started in 1847 allowed the extension of the legislative code from the mainland to the island. This process favoured the emergence of a sense of belonging to the same people and acquired

strength when, during the Big War, a battalion fully composed of Sardinians -- Brigata Sassari -- was sent to the front.

For the first time Sardinians recognised each other as the same people, with a common ground, similar issues, languages, and aspirations. This event has been determinant in creating an idea of in-group (Sardinians) as separated from the out-group (Italians). As a consequence a political party -- Partito Sardo D'Azione -- was also founded, with the aim to promote the integrity of the Sardinian culture against the foreign invaders (Salice, in press).

Partly myth and partly truth, it has always been said that Sardinia's millenary culture is still alive and observable at present. The family represents the core of the Sardinian society, and the roles of women and men had remained distinct and separated until a few decades ago. For instance, in a typical middle-class family the economy of the family would be managed by both partners but with different responsibilities. This family-centred set-up constitutes an inheritance of the ancient society and also reflects the principles of Christianity, to which Sardinians were converted in the 6th century AD. From then on, Sardinia's pagan culture started to integrate Christian rituals, which still coexist and are observed in the religious celebrations.

Despite the Sardinian history is rich of cultural and genetic contamination, Sardinians remain one of the most genetically isolated European populations and are thought of as an example of pre-Indo-European ethnicity. Sardinians are a heterogeneous population which present some distinctive genetic characteristics. At present, it is estimated that the 98% of the Sardinian population is of Italian nationality, and that only the 2% is composed of migrants, with Romanians, Moroccans, Chinese, North Africans, and Ukrainians

representing the biggest groups. However, migrants in Sardinia reside mostly in the cities and have recently settled, making second generation migrants a recent phenomenon.

One of the oldest proverbs about Sardinians in the local dialect reads *"Sa domo est minore, su coro est mannu"* (The house is small but the heart is big). If Sardinians are known for their suspiciousness towards foreigners, at the same time welcoming visitors and being good hosts represents one of the most important values for them. The two tendencies cohabit and make visitors welcomed and treated with respect on one side, but also not truly integrated within the Sardinian community on the other side.

Beside, a certain lack of connection among villages and a great richness in local dialects resulted in internal cultural isolation. This has possibly favoured the preservation of local traditions as well as fights over cultural supremacy between villages, and the tendency to judge people on the basis of their provenience. In this cultural context integration may become uneasy, and migrants are likely to experience low levels of cultural permeability.

4.3. The effect of multiculturalism in the perception of other social groups

This section presents theories about the effect of multiculturalism in individuals' perception of other individuals, and in particular of those who belong to different social groups. The literature shows that human cognition is shaped through a daily interaction with social partners and cultural exposure to conventions (Markus & Kitayama, 1991). Also, Tajfel and Turner (1986) explained that group membership often serves the function to guarantee positive status and self-identification, and suggested that a way to decrease distance

between groups would be to reduce group identification by providing novel ways to establish personal status and goal achievement.

Empirical work demonstrates that beliefs and attitudes towards either individuals or social groups can be modified through an increase of social contact (Berry, 1984). This point represents one of the main tenets of the contact hypothesis, according to which direct contact between members of two different groups may decrease negative beliefs about the other group (Allport, 1954). In particular, Brewer and Miller (1984) argued that contacts between groups are more successful when interactions between the single group members are close and intimate. Accordingly, Messick and Mackie (1989) argued that interactions that occur at a personal level are more likely to minimise category labels, to increase awareness of individual characteristics, and to reduce intergroup biases. There are different ways to reduce the distance between groups.

For instance, Kramer (1988) suggested that in order to do so, antagonist groups can be thought of as belonging to a super-ordinate category that includes them both. Similarly, Vanbeselaere (1987) proposed that outgroup members can be thought of as ingroup members of another group (e.g., two people from a different nationality can be perceived as more similar to each other on the basis of the fact that they are both students at the same University).

Bastian and Haslam (2008) acknowledge the benefits that multiculturalism brings to cultures with a high number of immigrants, but also accentuate the role played by integration between hosts and immigrants. They conducted some work on this aspect and investigated the link between essentialist beliefs and social identity, and their influence in group bias. What they found was that essentialist beliefs may affect social identity, and especially

aspects such as desirability, attitudes of differentiation from the outgroup or orientation towards to the outgroup, and perceived similarity between the self and individuals from the outgroup. Also, they observed that individuals who expressed essentialist beliefs towards the outgroup showed less favourable attitudes towards it, and that essentialist beliefs favour stereotypical views and promote between-groups differentiation and distance.

The attitudes of Sardinians towards other groups have also been explored. According to Bottazzi (1999), Sardinians are characterised by a certain extent of closeness towards other societal system, and this can be possibly caused by their insularity. Also, the perceptions of Sardinians about the ingroup have been investigated. For example, work by Aiello and Pratto (2006) explored essentialist beliefs about being Sardinian in a sample of Sardinian participants (N = 460). In particular, the study investigated the role of perceived ingroup Entitativity and the motivation to be a social dominator of other groups. Although participants showed a high level of ingroup Entitativity, they did not perceive themselves as potential social dominator of other groups. It was observed that essentialist beliefs about being Sardinian are held by Sardinians, and that they seem to be linked to cultural and social aspects (Aiello & Pratto, 2006).

4.4. Study 2

This section discusses the first part of Study 2, which was conducted with a sample of participants from Sardinia.

4.4.1. Method

4.4.1.1. Participants

A total of 87 students from a number of universities in Cagliari (Sardinia) were sampled for the study. The study was put online and advertised through social networks and leaflets distributed at the University Campuses. No participants were excluded from the analysis.

4.4.1.2. Design & Materials

The same questionnaire used in Study 1 was utilised for this study, and the set of social categories was translated and adapted in order to make it suitable for a sample of Italian participants. See Table 4.8 for a comparison between the two sets of categories used in Study 1 and 2.

4.4.1.3. Procedure

The questionnaire was completed online. Participants did not receive a monetary compensation but were offered the opportunity to enter a prize draw for cash. At the beginning of the study some demographics (gender, age, ethnic group, and nationality) were collected along with consent to take part to the study. As for Study 1, an explanation of the nature and procedure of the study and a definition of the term "social categories" were provided on the first screen. By proceeding further, participants gave their consent and the rights for the investigator to use the results for research purposes.

The layout of the questionnaire was the same as Study 1, with each screen showing one of the two sets of 18 categories from the list of 36. The order of presentation for both sets of categories remained the same throughout the experiment. From the third screen onwards, each screen showed a definition of a

measure of essentialism to be rated on the set of the 18 categories. The same essentialism measure appeared on two subsequent screens in order to allow the full list of 36 categories to be rated for each of the nine scales. There was no time limit for completing the task although an average of 30 minutes was given as an indication, and a bar on top of the screen showed progress through the study. The definitions of the measures of essentialism were entirely translated in Italian. See Table 4.9 and 4.10 in the Appendix section, and Table 3.2 and 3.3 for complete wording of the nine measures of essentialism according to Haslam et al. (2000).

The study remained accessible online for a period of two months. As for Study 1, version A presented the scales in ascending order from 1 to 9, and version B presented them in descending order from 9 to 1. Each version was completed by roughly 50% of the participants. Similarly to Study 1 and to Haslam et al. (2000), five scales were reverse-keyed: Scale 2 Uniformity, Scale 3 Informativeness, Scale 4 Naturalness, Scale 5 Immutability, and Scale 6 Stability. The ratings for the nine measures can be seen in Table 3.4. In order to avoid unrated items, participants were allowed to proceed to the next step only after rating all the categories on the existing page. As in Study 1, after the final screen, participants selected the five categories that they felt best described themselves.

4.4.2. Results

One of the main questions of the investigation concerned differences in essentialist beliefs between monocultural and multicultural contexts, and my assumption was that an environment characterised by a strong link with ancient traditions and a small level of exposure to foreign cultures may produce a) a

different structure of essentialist beliefs, and b) more entitative essentialist beliefs towards certain categories (e.g., minority groups).

As in Study 1, a first step into the analysis was to re-code the five reverse-keyed scales in order to have scores 1 indicating high values, and scores 7 indicating low values of essentialism. Then, reliability was calculated for the 9 measures. Good reliability (Cronbach's α) was found for all measures, as shown in Table 4.1, with the possible exception of Uniformity (α = .552), probably because of low variance across categories (SD = 0.25).

Measure	**Reliability**	**Mean**		**Std. Dev.**	**Communalities**
Discreteness	.924	3.42		0.61	.786
Uniformity	.552	4.42		0.25	.519
Informativeness	.888	4.37		0.49	.540
Naturalness	.982	3.49		1.27	.799
Immutability	.981	3.78		1.20	.710
Stability	.944	3.51		0.73	.819
Inherence	.782	3.92		0.35	.704
Necessity	.898	3.24		0.52	.778
Exclusivity	.870	4.79		0.44	.535

Table 4.1. Descriptive statistics for the nine measures of essentialism

The participant data were averaged in order to obtain mean ratings for each of the 36 categories on each of the 9 measures. Table 4.2 shows the correlations between the measures of essentialism.

Scales	Dis	Uni	Inf	Nat	Imm	Stab	Inh	Nec
Dis								
Uni	.386*							
Inf	-.189**	.519**						
Nat	.458**	-.017*	.440**					
Imm	.443**	.016	-.274	.754**				
Sta	.650**	.218	-.263	.799**	.805**			
Inh	.110	.393**	-586**	-.264	-.101	-.161*		
Nec	.839**	.314	-.142	.31	.411*	.421*	.319	
Exc	.328**	.296	.024	-.153	.000	-.059	.527**	.600**

Table 4.2. Correlations between the measures of essentialism. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed)

Subsequently, a Principal Component Analysis was run, which showed two orthogonal factors explaining 69% of the total variance. Factor 1 on its own explained 40% of the total Variance, and Factor 2 explained 29% of the total Variance (see Figure 4.1 for factor extraction of Factor 1 and Factor 2). Additional factors each accounted for ≤ 13.2% of the total variance.

The scree plot in Figure 4.1 showed three components with Eigenvalues greater than 1. Table 4.3 and Table 4.4 show the communalities and loadings for a three factor solution. Factor 2 from the two factor solution is divided into two further components: Exclusivity + Necessity, and Informativeness + Uniformity + Inherence. The need for a third component comes from the scales Necessity and Informativeness, which in the two component solution load on both components about equally.

Communalities		
	Initial	Extraction
Discreteness	1.000	.797
Uniformity	1.000	.744
Informativeness	1.000	.905
Naturalness	1.000	.833
Immutability	1.000	.749
Stability	1.000	.916
Inherence	1.000	.707
Necessity	1.000	.898
Exclusivity	1.000	.834

Table 4.3. Three-Factor Solution communalities

Rotated Component Matrix			
	Component		
	1	2	3
Stability	.954	.064	.024
Naturalness	.887	-.029	-.215
Immutability	.858	.080	-.080
Discreteness	.642	.613	.093
Exclusivity	-.161	.890	.125
Necessity	.425	.844	.071
Informativeness	-.281	-.149	.896
Uniformity	.211	.225	.806
Inherence	-.227	.477	.654

Table 4.4. Three-Factor Solution Rotated Component Matrix

My choice to include only two factors from the PCA was made upon evaluation of the Scree plot, where it is observed that the three factor solution is less clear. In the Scree plot no obvious elbow is observed in the graph (Figure 4.1), and being a third component just about Eigenvalue = 1, a three-factor solution so can be questioned. Also, given prior results from Haslam et al. (2000)

and from Study 1 showing only 2 factors, a three-factor solution should be reluctantly accepted without strong evidence.

Communalities		
	Initial	Extraction
Discreteness	1.000	.786
Uniformity	1.000	.519
Informativeness	1.000	.540
Naturalness	1.000	.799
Immutability	1.000	.710
Stability	1.000	.819
Inherence	1.000	.704
Necessity	1.000	.778
Exclusivity	1.000	.535

Table 4.5. Two-Factor Solution communalities

Rotated Component Matrix		
	Component	
	1	2
Stability	.905	.019
Naturalness	.868	-.212
Immutability	.842	-.038
Discreteness	.750	.472
Inherence	-.225	.808
Exclusivity	.069	.728
Uniformity	.081	.716
Necessity	.617	.631
Informativeness	-.503	.536

Table 4.6. Two-Factor Solution Rotated Component Matrix

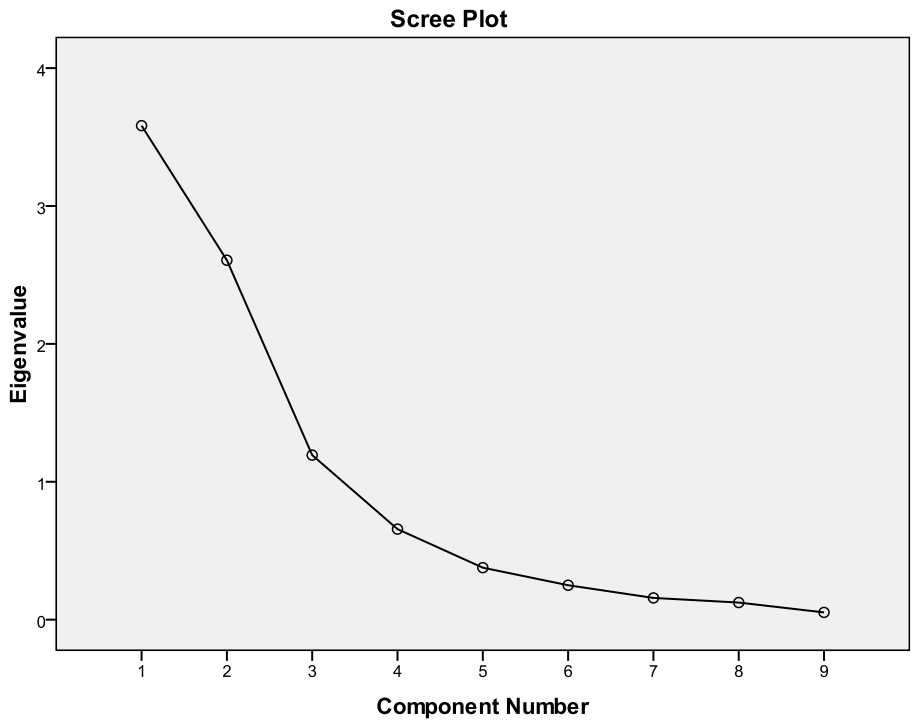

Figure 4.1. Factor Extraction of Factor 1 and Factor 2

According to the results, Factor 1 -- identified with Natural Kind -- included Naturalness, Immutability, Stability, Necessity, and Discreteness, and Factor 2 -- identified with Entitativity -- included Uniformity, Exclusivity, Inherence, and Informativeness (see Table 4.3 for the relative importance of Factor 1 and Factor 2, based on the Rotated Component Matrix, and Figure 4.2 for the factor loadings).

Measure	Factor 1	Factor 2
Stability	.887	-.172
Discreteness	.835	.303
Immutability	.814	-.215
Naturalness	.802	-.391
Necessity	.739	.486
Inherence	-.044	.838
Exclusivity	.225	.697
Uniformity	.234	.683
Informativeness	-.375	.630
Eigen Values	3.583	2.607
% of Variance	39.8%	28.9%
Sum of Variance	68.7%	

Table 4.7. Relative importance of Factor 1 and Factor 2, based on the Rotated Component Matrix

The structure observed is similar to Haslam et al. (2000) but different from Study 1, where Informativeness was negatively correlated with Natural-Kind-ness and was also excluded from Entitativity.

The presence of Stability, Immutability, Naturalness, Necessity, and Discreteness in the Natural Kind factor suggests that categories perceived as biologically based are attributed a certain degree of immutability and stability over time. Also, it suggests that people think that biological categories have their

membership defined through necessary factors and that they have sharp boundaries.

On the other side, the presence of Inherence, Informativeness, Exclusivity, and Uniformity in the Entitativity factor suggests that categories that are seen as entitative are believed to have underlying characteristics. Furthermore, members of these categories may be excluded from other categories, perceived as very similar to the other category members, and be judged on the basis of the category they belong to since their membership provides a great amount of information to the perceiver's eye. Figure 4.2 shows the structure of essentialist beliefs according to the Sardinian sample. Respectively, the Natural Kind's measures cluster on the x axis to form Factor 1, whereas the Entitativity measures cluster on the y axis to form Factor 2. For comparison, see Figure 3.2 for factor loadings of Study 1, and Figure 3.3 for Haslam et al. (2000).

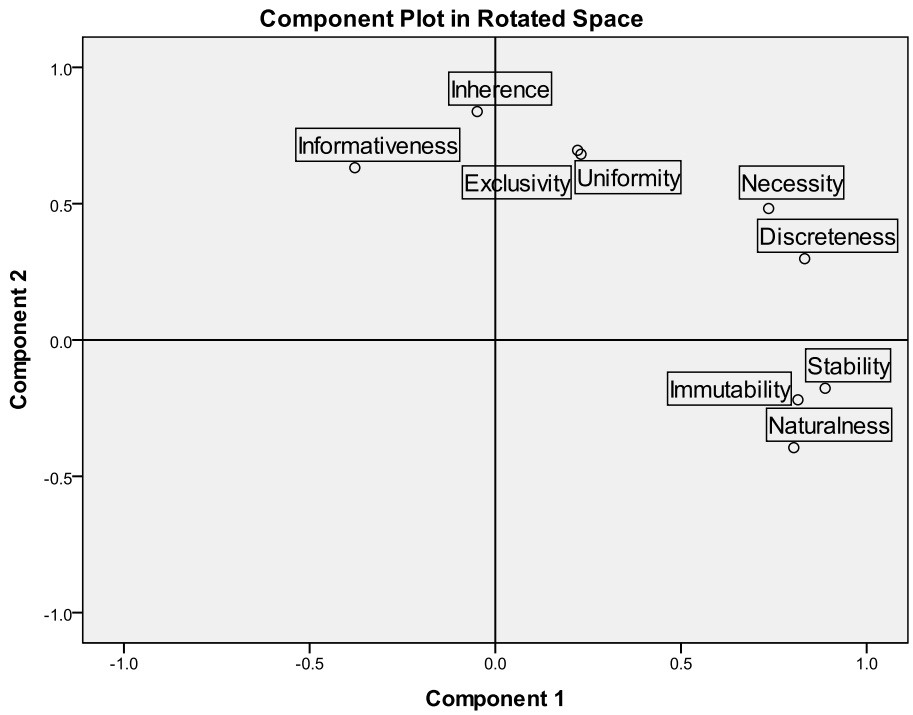

Figure 4.2. Factor Loadings for Factor 1 and Factor 2, Study 2

In order to explore differences and similarities between Study 1 and Study 2 in more depth and to see the locations of the categories along the two dimensions, a factor score was calculated for all items. This analysis allowed me to verify the hypothesis that some categories, and in particular minority groups, may be seen as entitative. Table 4.4 shows the factor scores and mean ratings of the social categories, by domain.

Domain	Category	Natural Kind	Entitativity
Age	**Old**	-.57	-.04
	Young	-.06	.05
Diet	**Vegetarian**	.00	-.78
	Meat-eater	-.50	-.06
Ethnic groups	**Chinese**	-1.05	.31
	Italian	-.38	-.76
Gender	**Female**	-1.69	-.96
	Male	-1.71	-.42
Intelligence	**Talented**	.93	1.12
	Intelligent	.31	.79
Disabilities	**Sighted**	-1.16	.90
	Blind	-1.58	-1.25
Occupation	**Pensioner**	.20	.20
	Student	1.09	-.03
Personality	**Selfish**	.70	.29
	Caring	.85	.32
	Shy	.76	.37
	Friendly	.75	.81
Physical appearance	**Attractive**	1.36	1.23
	Ugly	1.22	2.57
Physiques	**Short**	-1.14	1.64
	Tall	-1.38	1.59
Political groups	**Liberal**	1.41	-.90
	Conservative	.88	-1.57
Races	**Black**	-1.59	.48
	White	-1.64	.11
Religion	**Believer**	.31	-1.40
	Atheist	.37	-1.21
Sexual orientation	**Homosexual**	-.35	-.12
	Heterosexual	-.61	.46
Education	**Educated**	.53	-.36
	Uneducated	1.14	-.59
Social Status	**Married**	.36	-.57
	Single	.80	.47
Social Class	**Middle-Class**	1.13	-.29
	Upper-class	.33	-2.39

Table 4.8. Factor scores and mean ratings of the social categories, by domain

Figure 4.3 shows the location of the categories along Entitativity and Natural-Kind-ness. The figure shows a pattern similar to the one observed in Study 1, since domains like Gender (Female, and Male), Race (Black, and White), Ethnicity (Chinese), and Physical Disabilities (Blind) scored high along the Natural Kind factor (see Figure 3.4). On the contrary, domains like Class (Upper-Class), Political Groups (Conservative), Religious Beliefs (Atheists, and Believer), Social Status (Married), and Diet (Vegetarian) scored high on Entitativity. Similarly to Study 1, the highest score on Entitativity was shown by Upper-Class.

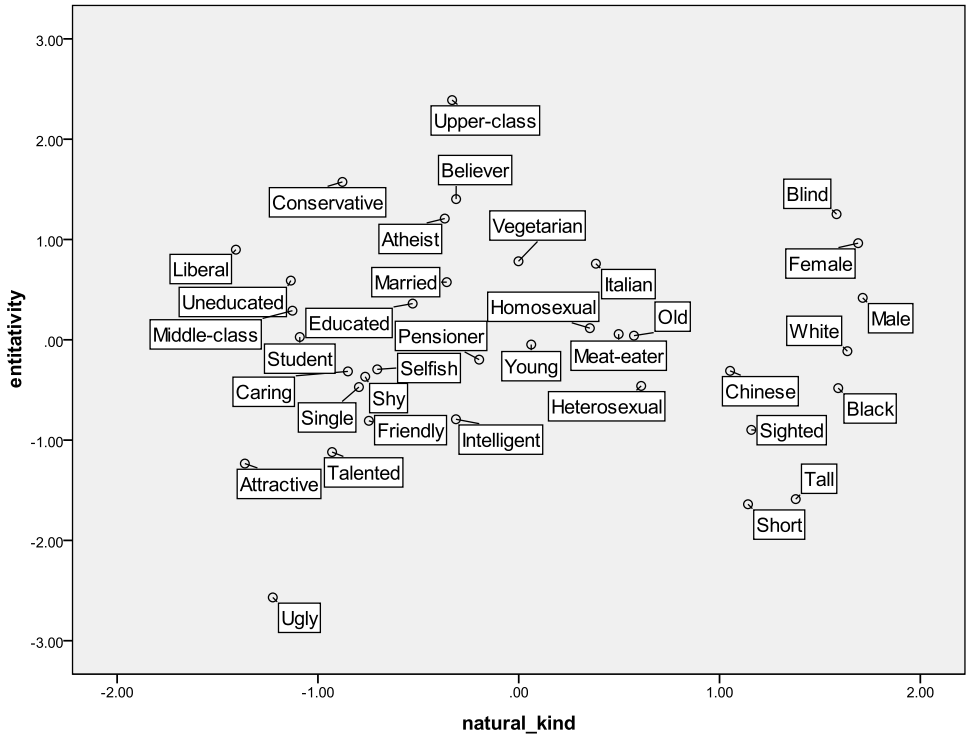

Figure 4.3. Location of all categories along Factor 1 and Factor 2

Also, some within-domain discrepancies were observed. For instance the category Italian was higher in Entitativity than the category Chinese, Upper-class

was high in Entitativity but also positive for Natural-Kind-ness, and Middle-Class was low in Entitativity and negative for Natural-Kind-ness. Similarly to Study 1, Vegetarians scored higher in Entitativity than Meat-Eaters, and all the Personality Trait categories clustered close to each other and were negative for both dimensions. Physical Traits (Tall, and Short) scored high for Natural-Kind-ness and low for Entitativity, whereas Physical Appearance (Ugly, and Attractive) scored low in both dimensions.

Moreover, the within-domain differences between Blacks and Whites observed by Haslam et al. (2000) were not replicated, and both categories scored high in naturalness. Likewise, Homosexuals and Heterosexuals received very similar ratings and were both higher in Natural-Kind-ness than in Entitativity. This result represented a difference from Study 1 since the Sexual Orientation domain did not show within-domain differences, and both Homosexuals and Heterosexuals loaded positive for Natural-Kind-ness.

Generally, a pattern similar to Study 1 was observed, with the difference that categories perceived as biological kinds were attributed even higher naturalness. These categories (e.g., Race, Sexual Orientation, and Ethnicity) -- which in Haslam et al. (2000) qualified as entitative -- came out strong on Natural-Kind-ness instead.

In view of these results, my suggestion is that essentialising along the Entitativity dimension does not correspond to a devaluation of a social category. Rather, this may be linked to the attribution of qualities that are more typical of the Entitativity factor, like the presence of underlying realities and a certain extent of internal homogeneity that may reflect cultural similarities. For instance, Study 2's participants rated the category Italian (in-group) higher for Entitativity

than the category Chinese (out-group). On the other hand, it is possible that belonging to a mono-cultural and traditional environment does not necessarily lead to the perception of minority groups as more entitative. As suggested by the literature, the two dimensions of Natural Kind and Entitativity should be regarded as two different ways of essentialising that both converge in the same phenomenon, which is the attribution of meaning to social groups (Demoulin et al., 2006).

Before proceeding to the analysis of the second part of the study, I would like to discuss the results of the first part of the investigation in more detail. As argued in Chapter 3, high consistency in the occurrence of a two-dimension structure in the explanation of essentialist beliefs, and similarities in the composition of the two dimensions across the three studies reinforce the hypothesis that some generalisation across western cultures can be made. Thus, further investigation could focus on the design of a more refined scale for the measurement of essentialist beliefs about social categories (see Chapter 5). At this stage it is difficult to draw conclusions about the reasons why in Study 1 Informativeness was strongly negative for Natural-Kind-ness and weakly positive for Entitativity, but this certainly represents an interesting ground for further investigation.

Furthermore, the analysis of the individual category scores showed similarities and differences across the three cultures. In view of Haslam et al.' s (2000) results, Sardinians were expected to produce more extreme scores along the Entitativity dimension for Race, Ethnicity, and Homosexuals. However, the results showed that these categories scored higher in Natural-Kind-ness than in Entitativity, and that categories from the same domain received similar ratings

with the exception of ethnicity, where Italian rated higher in Entitativity than Chinese.

A similar pattern was observed in Study 1, and interpreted in consideration of the fact that subjects from a multicultural environment benefit from having direct contact with minority groups, and that there is a high likelihood for some of the participants to eventually belong to those minority groups. However, this explanation becomes weaker in consideration of Study 2's results. Hence, I suggest that cultural contexts determine differences in essentialist beliefs, but whether this role is played by multiculturalism or by different cultural instances has yet to be demonstrated.

4.5. Investigation 2

This section describes the second part of the study, which explored the impact of category membership in essentialist beliefs about one's own and others' categories. Table 4.5 shows the frequencies and percentages for the chosen categories: 16 categories were chosen by at least 9 participants (9 participants represent roughly the 10% of the total) and 6 categories had no self-identifiers.

Category	Freq.	%	Category	Freq.	%
Old	0	0%	**Young**	**47**	**54%**
Attractive	5	6%	Ugly	1	1%
Upper-class	1	1%	Middle-class	0	0%
Meat-eater	4	5%	Vegetarian	4	5%
Blind	0	0%	**Sighted**	**15**	**17%**
Italian	**28**	**32%**	Chinese	0	0%
Female	**39**	**45%**	**Male**	**25**	**29%**
Talented	**9**	**10%**	**Intelligent**	**37**	**43%**
Student	**14**	**16%**	Pensioner	2	2%
Caring	**23**	**26%**	Selfish	2	2%
Shy	**10**	**11%**	**Friendly**	**34**	**39%**
Short	2	2%	Tall	4	5%
Liberal	6	7%	Conservative	1	1%
White	3	3%	Black	0	0%
Atheist	**11**	**13%**	**Believer**	**11**	**13%**
Homosexual	1	1%	**Heterosexual**	**29**	**33%**
Married	**10**	**11%**	Single	7	8%
Educated	**32**	**37%**	Uneducated	0	0%

Table 4.9. Frequencies of self-categories as chosen by participants. The characters in bold show the categories that were chosen by at least 9 participants (10% of the total)

The same experimental procedure and data analysis employed for Study 1 were adopted for Study 2, and the data were analysed in two different ways. On the one hand, the analysis by items considered the mean ratings for categories that were chosen by at least 9 people (16 categories in total). On the other hand, the analysis by participants considered all categories.

Analysis by Items

For the 16 categories chosen by at least 9 people the mean ratings for each category and each scale were calculated for both the subset of participants who expressed membership in the category (Identifiers), and the subset of participants who did not (Non-Identifiers). The mean ratings for the two subsets (Identifier and Non-identifier) are shown in Table 4.6. The ratings have been averaged for the 16 categories that had at least 10% of identifiers across the nine scales (paired t-test across the 16 categories). Low values correspond to high scores of essentialism.

The results show that, among the 16 categories chosen at least by 9 people, only one scale was significantly higher in essentialism for those self-identifying than for those not. With uncorrected alpha, three measures reached significance. They are all measures of Natural Kind: Scale 1 Discreteness; Scale 4 Naturalness; and Scale 5 Immutability. It is worth mentioning that similarly to Study 1, own categories scored consistently higher on essentialism even for the non significant scales. On the basis of this result, I proceeded further into the analysis by averaging the values of the 9 measures and collapsing them into the two respective dimensions of Natural Kind and Entitativity; Natural Kind showed a significant difference ($p < .001$), whereas Entitativity came out not significant. These results are shown in Table 4.10.

Measure	Identifier	Non-Id	Paired t	Significance
Discreteness	3.10	3.43	3.15	<.001
Uniformity	4.25	4.37	1.08	N.S.
Informativeness	3.96	4.20	1.76	N.S.
Naturalness	3.29	3.60	2.36	<.005
Immutability	3.23	4.04	2.31	<.005
Stability	3.41	3.47	0.44	N.S.
Inherence	3.80	3.93	0.94	N.S.
Necessity	3.25	3.39	1.16	N.S.
Exclusivity	4.97	5.05	0.63	N.S.
Natural Kind	**3.37**	**3.59**	**4.24**	**<.001**
Entitativity	4.25	4.39	1.80	N.S.

Table 4.10. Item analysis. For each measure, the mean rating for Self-Identifiers (ID) and Non-identifiers (Non) for the 16 categories with at least 9 people identifying with them. Lower values indicate more essentialist responses

Analysis by participants

The second way of analysing the data was conducted by considering the sum of the ratings of the 5 self-categories on each scale for each participant, and by comparing these ratings to the sum of the ratings for the same 5 categories on that scale for all the remaining participants. What is termed own-category indicates the former value, whereas others-category represents the sum of mean

ratings provided by the remainder of the group to those same categories. The results are shown in Table 4.5.

Measure	Identifier	Non-Id	Paired t	Significance
Discreteness	3.2	3.4	1.11	N.S.
Uniformity	4.2	4.3	0.87	N.S.
Informativeness	3.9	4.2	1.36	N.S.
Naturalness	3.0	3.3	2.13	<.005
Immutability	3.7	3.8	2.08	<.005
Stability	3.3	3.4	0.48	N.S.
Inherence	3.8	3.9	0.67	N.S.
Necessity	3.2	3.3	0.50	N.S.
Exclusivity	4.9	5.0	0.46	N.S.
Natural Kind	**3.3**	**3.4**	**1.96**	**<.10**
Entitativity	4.2	4.4	1.46	N.S.

Table 4.11. Participant analysis. For each measure, the mean rating given by an individual to the five categories with which they identified (Own) is compared to the mean rating given by the rest of the group to those five categories (Group). Lower values indicate more essentialist responses

The only two scales that showed significance are Scale 4 (Naturalness) and Scale 5 (Immutability), which belong to the Natural Kind factor. Again, own categories were rated consistently higher on essentialism than others-categories. This pattern was consistent across all the scales, even for the ones with poor

significance. In accordance with the results from the previous analysis, own categories are more essentialist and the categories related to Natural-Kind-ness are enhanced for own categories whereas those related to Entitativity are not. It is possible that the size of the sample determined this weak effect for most of the scales and a not very strong value of p in the two significant scales, which was close to 0.05. However, the results showed consistency with the prediction and with the results of Study 1.

4.6. Comparison between Study 1 and 2

Study 1 and 2 were similar in the design but not identical. In fact, the social categories used in the two studies presented some small differences in order for them to suit those commonly known in the contexts where the studies were run. However, they were similar enough to allow comparisons to be made. This section presents some statistical analysis comparing the two studies. The figures have been already presented in Chapter 3 and Chapter 4.

4.6.1. Similarities between Study 1 and Study 2

In the investigation of similarities between Study 1 and 2 it was found that reliabilities of the scales correlated between the studies at .82. In both studies Uniformity, Inherence, and Exclusivity had a lower reliability than the other scales. Means and standard deviations also correlated highly between the two studies (M = .94; SD = .91).

4.6.2. Correlation of Scales

The correlation between the correlation matrices of scales was calculated in order to explore the extent to which the two studies are different in correlational structure. Correlations were transformed to Fisher Z values in order

to clarify to what extent the correlations between scales differ in the two samples. Correlations were then compared between the two samples, and significant differences in size of correlation were identified, using t-tests, based on the standard error of Z, which is the square root of (1/(N1 – 3) + 1/(N2 – 3)). Across the 28 correlations, using Bonferroni corrected alpha of .0018, there were 10 significantly different correlations, which are in bold characters in Table 4.12 and in Table 4.13. Five of the significant differences involved the Inherence scale which had larger positive correlations for Study 1 than for Study 2 with all other scales. In contrast, there were no significant differences in the correlations involving Exclusivity. Standard error of difference in Z, based on N1 = 123, N2 = 87, is Square Root (1/120 + 1/84).

Difference in Z (Study 1 and Study 2)								
	Dis	**Uni**	**Inf**	**Nat**	**Imm**	**Sta**	**Inh**	**Nec**
Discreteness								
Uniformity	-0.331							
Informative	-0.340	-0.079						
Naturalness	0.052	0.363	**-1.322**					
Immutable	-0.022	-0.095	-0.120	0.051				
Stability	0.059	-0.337	**-0.534**	-0.073	-0.393			
Inherence	**0.482**	0.213	**0.796**	**0.598**	**0.615**	**0.531**		
Necessity	-0.114	**0.832**	-0.390	**0.577**	**0.458**	0.306	0.413	
Exclusivity	0.149	0.181	0.051	0.170	0.217	0.172	0.128	-0.162

Table 4.12. Difference in Z in Study 1 and Study 2 (a positive difference indicates a stronger positive correlation in Study 1 than in Study 2). Significant differences are shown in Bold.

Table 4.12 and Table 4.13 show that Inherence was different from the other scales, having stronger positive correlation with all other scales in Study 1 than in Study 2. It is interesting to note that Inherence has been argued to be a central feature for essentialism. In fact, the literature argues about how it may represent the ground from which essentialism develops. According to Cimpian and Solomon (2013), children from a young age present what they call the "inherence heuristic", which is a cognitive ability to link external traits to internal features, and this ability will develop later in life into the more complex concept of psychological essentialism. Inherence was positively correlated to the other scales in Study 1, which means that it is a more central measure of essentialism, whereas in Study 2 a much weaker correlation was observed for Inherence. Further research would be needed to clarify the differences observed in the behaviour of Inherence in Study 1 and Study 2.

4.6.3. Factor loadings

This section presents some analysis in which data presented in Chapter 3 and 4 were compared. The PCA with two components was compared between Study 1 and Study 2. Component 1 correlated across the two studies at .932 (see Figure 4.4), and Component 2 at .886 (see Figure 4.5) so they were broadly similar. The scale that falls below the line for Factor 1 is Inherence, which has been discussed as a possible difference between the two studies.

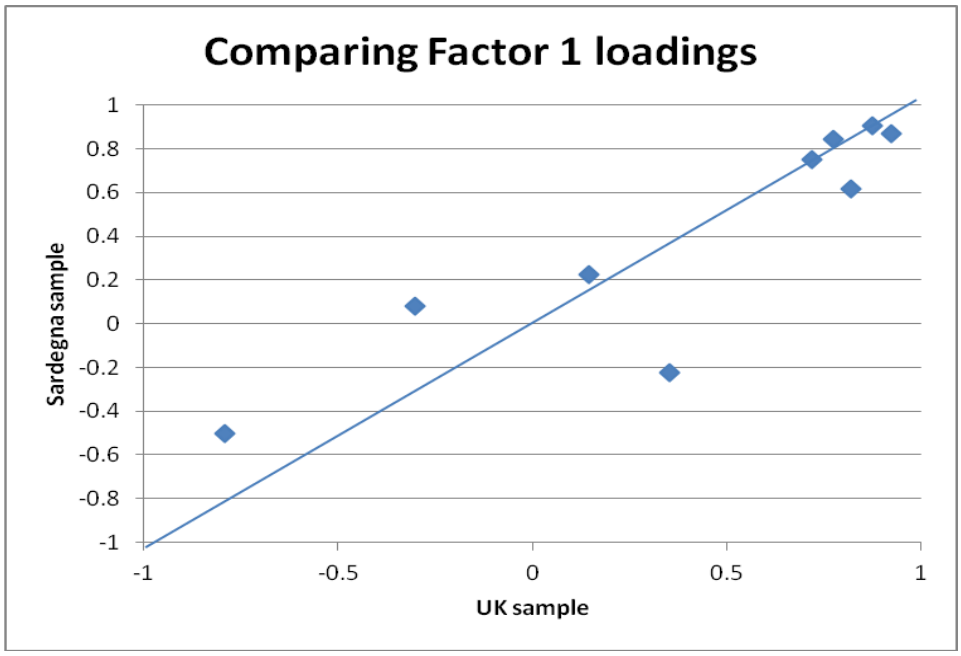

Figure 4.4. Comparing Factor 1 Loadings

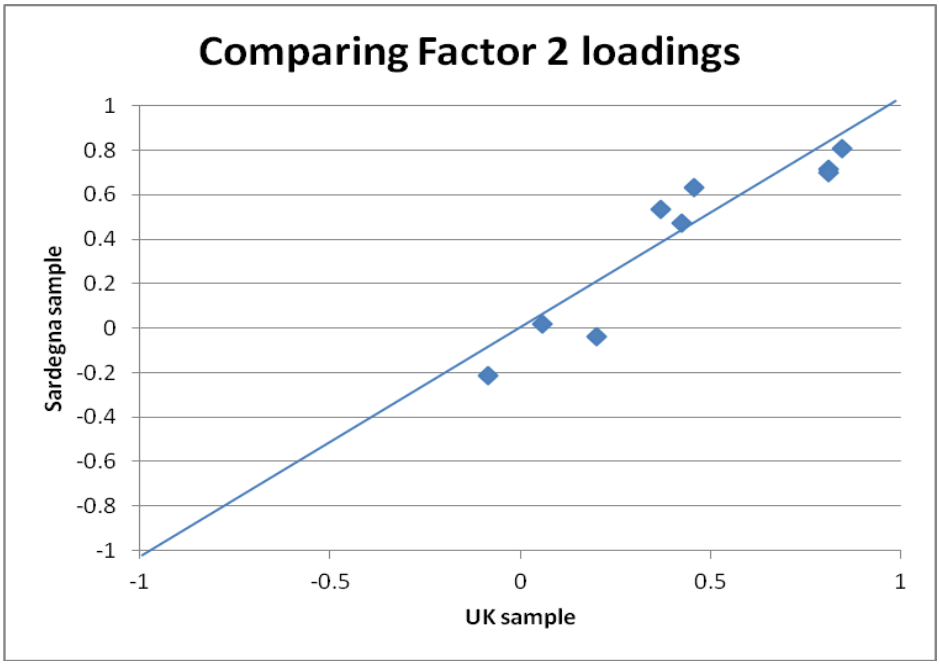

Figure 4.5. Comparing Factor 2 Loadings

Factor scores for individual social categories were compared excluding the ethnic group categories which did not correspond. By comparing Component

1 and 2 except for the ethnic groups, the two graphs look very similar. By looking at the Natural Kind loadings, the two samples were well correlated (.93), but slightly less correlated for Entitativity (.85). The high correlations across categories confirm a similarity of the factor structure observed in Study 1 and 2 (see Figure 3.2 and Figure 4.2).

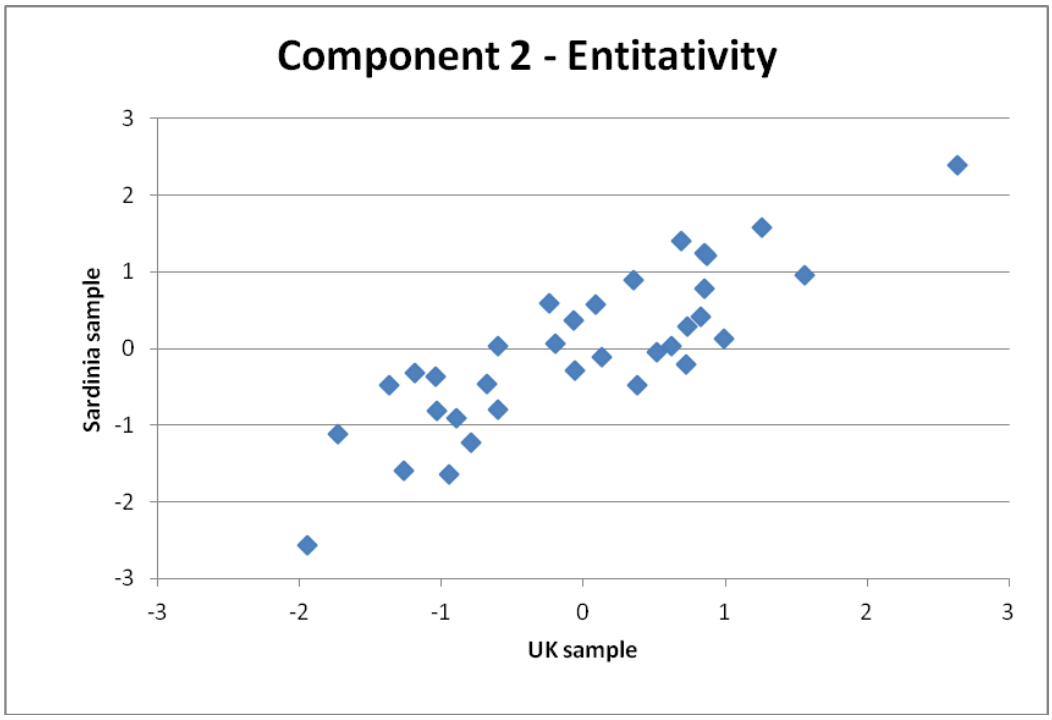

Figure 4.6. Factor scores for Component 2

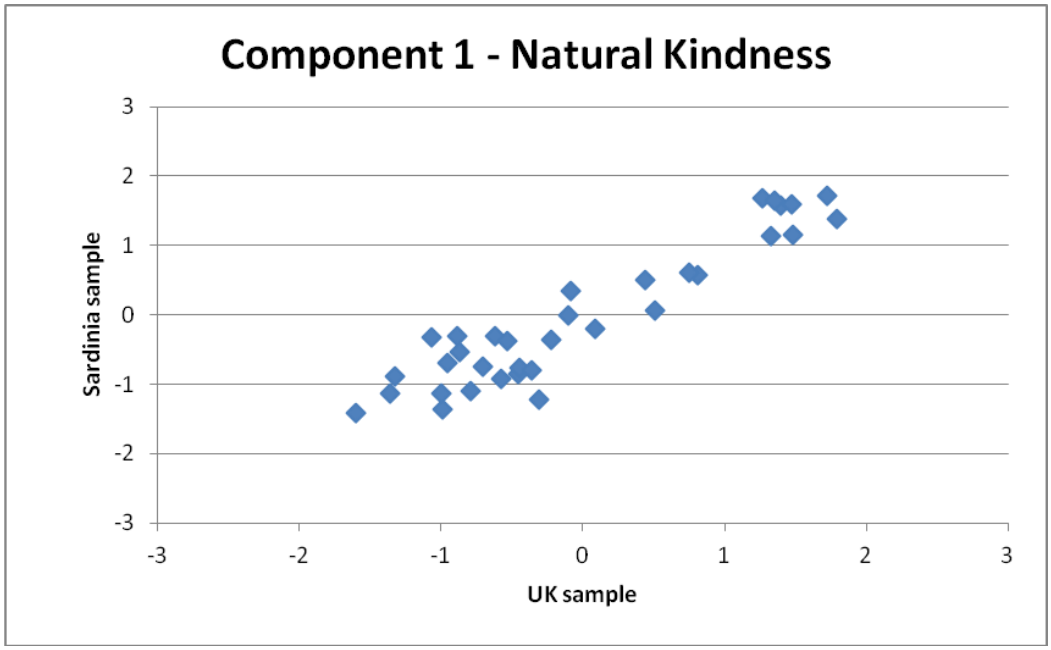

Figure 4.7. Factor scores for Component 1

Strong similarities were observed between the two samples as both were fit well by the two-factor solution, also indicating strong similarity to Haslam et al (2000). Inherence was strongly tied into Natural-Kind-ness (Component 1) for the London sample but not as strongly for the Sardegna sample. It is unclear why this effect was observed but further research could certainly clarify this.

4.7. General Discussion

The aim of this study was to explore three aspects. First, I wanted to see whether the two-factor structure for essentialist beliefs suggested by Haslam et al. (2000) and also observed in Study 1 would be replicated in a different socio-cultural context. My expectation was that the structure observed with a mono-cultural sample would bear more similarities with the original study due to the fact that they were both conducted in traditional settings. Second, I wanted to clarify individual category scores and in particular the ratings attributed to the minority groups. Third, I wanted to provide further support to the findings of the self-categorisation investigation, which showed that own categories are judged consistently higher on essentialism and that this especially involves the attribution of naturalness to self-categories.

Results from the present study provided further evidence about the occurrence of the two dimensions of essentialism, and strengthened Study 1's findings. Interestingly, the results showed that the structure of the two factors was very similar to Haslam et al. (2000) although Study 1 produced different results in relation to Informativeness. An explanation for this could be the occurrence of an effect linked to multiculturalism, which may be clarified through further investigation.

Nevertheless, it is interesting that the analysis of the single categories showed closer resemblances with the category scores from Study 1. In particular, domains such as Race and Sexual Orientation did not show the same within-domain differences observed in the original study. Whereas in Haslam et al.

(2000) such categories were highly entitative, in Study 2 they were high in Natural-Kind-ness. The same trend was also observed in Study 1.

According to these findings, I think that the conclusions drawn for Study 1 -- which advanced the hypothesis that multiculturalism may favour the "naturalisation" of some social categories -- may require some further investigation about which environmental factors contribute to this mechanism. If some differences occur, and if these differences can be linked to socio-cultural factors, this investigation does not provide the ground to clarify which variables determine them.

Whereas Mid-western Americans tend to categorise biological categories under the Entitativity domain, the two samples of Londoners and Sardinians did not do so. If cross-cultural differences in essentialist beliefs (Newman & Keil, 2008) and cognitive styles (Nisbett, 2003) have been highlighted in the literature, differences between Americans and Europeans in relation to this aspect have not been investigated. Further research could explore these differences in more depth, and determine which factors of the cultural context are relevant in how social categories are essentialised.

The aim of the second part of the study was to provide strength to the findings of Study 1 about the role that category membership plays in essentialist beliefs about one's own and others' categories. As discussed in Chapter 3, Study 1 provided evidence for own categories to be essentialised more with high consistency across all categories for the Natural Kind measures but not for Entitativity. The results from Study 2 confirmed this trend with high consistency across all participants. For example, the scores of the individual categories show that the 39 participants who rated themselves under the category Female

attributed to that category 2.15, whereas the same category was attributed 2.19 by non-identifiers. Moreover, the category Italian was rated 3.07 by its 28 identifiers and 3.31 by non-identifiers, and Atheist scored 3.41 for the 11 identifiers and 3.80 for the non-identifiers. These results provide further strength to the conclusion that category members perceive their own categories as more natural than non-members do, attributing them naturalness, stability, and sharp boundaries.

The literature suggests that higher levels of naturalness may be linked to the attribution of a higher status (Haslam et al., 2000). However, a different position argues that essentialism is determined by the interplay between Entitativity and Natural-Kind-ness (see Demoulin, Leyens, & Yzerbyt, 2006). For example, if we look at the scores of the single categories across the Natural Kind and Entitativity factors (see Figure 4.3), and if we consider for example the Italian category, we see that it rated higher on Entitativity than the Chinese category. Moreover, minority groups such as Blacks -- that were unlikely to represent any of the Sardinian participants -- rated high in naturalness.

In view of these results and of some previous work (Demoulin, Leyens, & Yzerbyt, 2006), we should consider both Natural Kind and Entitativity as fundamental components of essentialist beliefs. In fact, if Haslam et al. (2000) argued that perceiving a category as more natural correspond to the attribution of higher levels of essentialism, the attribution of Entitativity is also a symptom of high levels of essentialism (Demoulin, Leyens, & Yzerbyt, 2006). According to Demoulin, Leyens, and Yzerbyt (2006), forced social categories (FSC) -- which are those not related to personal choice -- are generally attributed high Natural-Kind-ness and low Entitativity, as opposed to chosen social categories (CSC).

This claim has been supported by my results, which showed that Race, Ethnicity, and Physical Traits all rated positive for Natural Kind regardless of category membership.

According to Demoulin, Leyens, and Yzerbyt (2006), forced and chosen categories are both essentialised to the same extent but the attribution of an underlying nature is linked to the type of category. Natural-Kind-ness and Entitativity are deeply related to the tendency to essentialise categories: either separately or jointly they are both accountable for the attribution of essences. The category ratings in Study 2 may be interpreted in consideration of this argument. For example, the scores received by the category Chinese were particularly puzzling since they revealed higher naturalness than the category Italians. If we consider Demoulin, Leyens, and Yzerbyt's (2006) account, the two categories can be seen as essentialised to the same extent but in a different way.

Possibly, being an Italian from the perspective of an Italian means having inner essences, sharing some distinctive features, and holding meaningful information. These features may contribute to provide the category members with an important portion of self-esteem and personal meaning. In fact, the literature shows that individuals strongly invoke social identity in situations where they are in contact with another culture or when they compare their group to another one. Social identities become meaningful sources of personal identity (Berry, 2001) through a mechanism called civic identity (or ethnic identity) (Kalin & Berry, 1995). On the same opinion, Tajfel (1981) claimed that group membership involves emotional investment, and Hong et al. (2003) argued that

individuals attribute central features to social groups, and then use the same features to define their own self-identity.

On the other hand, being Chinese from the perspective of Italians may recall more biological features. The process according to which ethnicities are seen as biological kinds has been argued in the literature by Gil-White (2001), who claims that genotypic traits account for the fact that appearances are processed by the human's eye as a cue for internal differences and that they create beliefs about the existence of different human species.

Study 2 provided strength to previous evidence about the structure of essentialist beliefs and represents a solid ground for further investigation. In the next chapter a study whose purpose was to design a more economical measurement of essentialist beliefs about social categories and individual traits will be discussed.

4.8. Appendix: Instructions, categories, and scales in Italian

Instructions

"Le Categorie Sociali sono un modo di categorizzare o classificare le persone e consistono in raggruppamenti ideali di persone con simili caratteristiche. L'obiettivo di questo studio è quello di indagare il modo in cui le persone percepiscono le categorie sociali, e per questo motivo ti verrà chiesto di valutare una lista di categorie sociali in diverse scale.

Il completamento di questo questionario è completamente volontario ed anonimo. Il tuo nome non apparirà nei dati per nessuna ragione. Non esistono risposte giuste o sbagliate, ad ogni modo le tue risposte saranno vitali per il buon esito di questo studio, quindi ti suggerisco di pensare attentamente prima di rispondere. Di seguito, saranno presentate 9 scale, ognuna delle quali occuperà due pagine. Alla fine, nell'ultima pagina, ti verrà chiesto di indicare a quali categorie sociali pensi di appartenere".

Domains	**Study 1**		**Study 2**	
Age groups	Old	Young	Anziano	Giovane
Dietary groups	Meat-eaters	Vegetarians	Carnivoro	Vegetariano
Ethnic groups	British	Asians	Italiano	Asiatico
Gender	Male	Female	Uomo	Donna
Intelligence	Talented	Intelligent	Talentuoso	Intelligente
Disabilities	Blind	Sighted	Non-vedente	Vedente
Occupations	Student	Pensioner	Studente	Pensionato
Personality	Caring	Selfish	Altruista	Egoista
	Shy	Friendly	Timido	Amichevole
Physique	Attractive	Ugly	Attraente	Brutto
Physiques	Short	Tall	Basso	Alto
Political groups	Liberal	Conservative	Social-Democratico	Conservatore
Races	Black	White	Nero	Bianco
Religions	Atheists	Believers	Ateo	Credente
Sexual orientation	Hetero-sexuals	Homo-sexuals	Eterosessuale	Omosessual
Education	Educated	Non-educated	Istruito	Non istruito
Social Status	Married	Single	Coniugato	Single
Social classes	Upper-class	Middle-class	Ceto Sociale Alto	Ceto Sociale Medio

Table 4.13. Sets of social categories used in Study 1, and in Study 2

	NATURAL KIND DIMENSION
MEASURE	**DEFINITION**
Discreteness	Alcune categorie hanno dei confini maggiormente definiti rispetto altre. Per alcune, l'appartenenza ad un gruppo è netta, definita, e le persone possono appartenere ad una certa categoria sociale, oppure non appartenervi.Per altre categorie sociali, invece, l'appartenenza può essere più sfumata, per cui le persone possono avere diversi gradi di membership ad una categoria sociale.
Necessity	Alcune categorie richiedono ai loro membri la presenza di determinate caratteristiche, senza le quail una persona non può essere un membro di quella categoria. Altre categorie non richiedono la presenza di tali caratteristiche per diventare membro di tali categorie.
Immutability	L'appartenenza ad alcune categorie sociali è facilmente modificabile ed i loro membri possono facilmente diventare non-membri. La membership in altre categorie è invece relativamente immutabile; per cui risulterebbe difficile per un membro di una categoria diventare un non-membro.
Stability	Alcune categorie sociali sono maggiormente stabili nel tempo rispetto ad altre, esse sono sempre esistite e le loro caratteristiche non hanno subito grosse modificazioni nel corso della storia. Altre categorie sono meno stabili, le loro caratteristiche hanno subito modifiche sostanziali e potrebbero non essere sempre esistite nel corse della storia.
Naturalness	Alcune categorie sociali sono più naturali, mentre altre sono più artificiali.

Table 4.14. Natural Kind measures translated in Italian from Haslam et al. (2000)

	ENTITATIVITY DIMENSION
MEASURE	**DEFINITION**
Uniformity	I membri di alcune categorie sociali sono molto simili tra loro,hanno molte caratteristiche in comune e sono piuttosto uniformi. I membri di altre categorie sono invece molto diversi tra loro, e non condividono molte caratteristiche
Informative-ness	Talvolta, è possibile dare numerosi giudizi sui membri di alcune categorie sociali: sapere che una persona appartiene ad una categoria ci dice molto rispetto ad essa. In altri casi, invece, possiamo dare solo pochi giudizi riguardo i membri di una categoria, e l'appartenenza è poco informativa.
Inherence	Alcune categorie sociali possiedono una realtà sottostante: sebbene i loro membri presentino similitudini e differenze in superficie, interiormente essi sono sostanzialmente uguali. Altre categorie presentano similitudini e differenze in superficie, ma non condividono similitudini di fondo.
Exclusivity	Alcune categorie sociali richiedono che i propri membri possiedano determinate caratteristiche, e se una persona non possiede tali caratteristiche non può essere membro di tale categoria. Altre categorie condividono similitudini, ma non richiedono ai loro membri di possedere determinate caratteristiche.

Table 4.15. Entitativity measures translated in Italian from Haslam et al. (2000)

Numeration	MEASURE	HIGH RATINGS	LOW RATINGS
1	**Discreteness**	1= confini netti, definite	7= confini sfumati, indefiniti
2	**Uniformity**	1= diverso, dissimile	7= uniforme, simile
3	**Informative-ness**	1= pochi giudizi, non informative	7= molti giudizi, informativo
4	**Naturalness**	1= artificiale	7= naturale
5	**Immutability**	1= facilmente modificabile, mutevole	7= non facilmente modificabile, immutevole
6	**Stability**	1= instabile nel tempo	7= stabile nel tempo
7	**Inherence**	1= realtá o identitá sottostante	7= nessuna realtá o identitá sottostante
8	**Necessity**	1= caratteristiche peculiari o necessarie	7= assenza di caratteristiche peculiari o necessarie
9	**Exclusivity**	1= esclude altre categorie	7= non esclude altre categorie

Table 4.16. Ratings for the nine measures of essentialism according to Haslam et al. (2000). The reverse keying is not shown in the Table. In the actual survey, scales 2-6 had a 7 for the High rating and a 1 for the Low rating

Chapter 5:

Individual styles of essentialism

5.1. Introduction

Study 1 and 2 confirmed previous findings about the occurrence of Natural Kind and Entitativity in the explanation of essentialist beliefs about social categories (see Haslam et al., 2000). Some similarities were observed between Study 1 and 2 in the way single categories were essentialised and in the overall composition of the two dimensions. In both studies the Natural Kind factor included Discreteness, Naturalness, Stability, Immutability, and Necessity. However, Entitativity included Uniformity, Inherence, Exclusivity, and Informativeness in Study 2 but not in Study 1, where Informativeness loaded negatively on Natural Kind instead.

On the other hand, similarities in relation to the composition of the two factors were observed between Haslam et al. (2000) and Study 2, but not in the way individual categories are essentialised. The second aspect that was highlighted by both Study 1 and 2 was that self-categories are essentialised more than others-categories. Also, a further analysis of the data showed that individual differences occur across individuals, and that individual styles are located across the continuum line of which Entitativity and Natural Kind represent the two extremities. This aspect of the results is discussed in section 5.2. Overall, the results of Haslam et al. (2000), Study 1, and Study 2 taken together suggested that the observed differences may be determined by cultural factors and by intra-group processes. The role played by the presence of participants from minority groups in the multicultural sample (Study 1) has also been considered.

In their investigation Haslam et al. (2000) showed that people essentialise social categories according to the two dimensions of Natural Kind and Entitativity. However, their assumption was that individuals essentialise in

the same way and thus they did not consider individual styles. The present study aimed to address this point and advances the hypothesis that individuals can differ in their essentialist style.

The former two studies provided evidence about the composition of essentialist beliefs. Despite the differences in the composition of Entitativity observed in Study 1, the overall structure was confirmed with high consistency and represented a solid ground for the present investigation. Study 3 was concerned with the design of a more refined and economical measure of essentialist beliefs and employed four measures of essentialism: two Natural Kind measures (Naturalness, and Discreteness) and two Entitativity measures (Uniformity, and Informativeness), which had to be rated on a number of items concerning Social Categories (Class, and Religion) and Personality Traits (Intelligence, and Personality).

Study 3 is also referred to as the Four-Essentialism Measure Study. Section 5.2 and 5.3 present respectively a reanalysis of the findings of Study 1 and 2 in relation to individual differences in cognitive styles, and a discussion of the results, thus describe the empirical background of Study 3. Section 5.4 gives a definition of cognitive style, a summary of theories about cognitive styles, and of their measurements. Section 5.5 introduces researchers' current positions about cognitive styles in Autism Spectrum Disorder subjects, and differences between Autism Spectrum Disorder s and normally developing individuals. The study presented in this chapter aimed at investigating whether individuals with a diagnosis of Autism Spectrum Disorder differ in their essentialist style from normally developing subjects. There is no previous research directly examining this aspect, and this is partly because no scale of essentialist beliefs exists.

Designing a scale of essentialist beliefs to be used in investigating this aspect represents one of the aims of the work presented in Section 5.6.

According to the literature, individuals affected by Autism Spectrum Disorder show interesting cognitive differences in a number of aspects (e.g., cognitive rigidity, black or white thinking, and literalness). In particular, cognitive and social difficulties in Autism Spectrum Disorders are hypothesised to be determined by a lack of central coherence (cognition) and by the absence of a theory of mind (social interaction). The two aspects are discussed.

These aspects lead me to suppose that individuals affected by Autism Spectrum Disorder may also show differences in being more likely to see social categories as either natural or entitative compared to typically developing individuals. If this is found, it could provide another piece of evidence for understanding the world of Autism Spectrum Disorder, and it would also provide a link between essentialist beliefs and other cognitive styles.

Section 5.7 describes the design, procedure, and method employed for Study 3. At the end of the section the results are discussed. The results of the investigation conducted with a sample of normally developing subjects and with Autism Spectrum Disorder subjects are discussed in sub-sections 5.7.2 and 5.7.3. My hypothesis for this investigation was formulated on the basis of current theories that describe Autism Spectrum Disorder subjects' cognitive style as rigid and fixed (Bertoglio & Hendren, 2009; Lewis et al., 2007). Therefore, my expectation was that the sample of Autism Spectrum Disorder subjects would be more extreme in their essentialist judgments. Section 5.8 summarises the results of the two investigations and provides a joint discussion of the findings.

5.2. Empirical background of the study

In Haslam et al. (2000) the assumption was that individuals' scores and their variability across the 9 scales produced a picture of the structure of Natural Kind and Entitativity. The same analysis was run in Study 1 and 2 and confirmed the occurrence of the factors. However, the data can also be analysed in a way that considers the average social category in order to see how essentialist people are in their ratings across the 9 scales, and whether people differ in terms of the Entitativity and Natural Kind-ness of their judgments. For example, some people may judge social categories to be natural kinds whereas other people may not, and some people may judge social categories to be entitative whereas others may not.

London sample

The data collected for Study 1 provided ratings of the 36 social categories on the 9 scales for each participant (N = 123). The analysis presented previously collapsed this three-way dataset across participants to provide a matrix of social categories by scales. In the present analysis I collapsed the dataset across social categories in order to obtain a measure of how strongly each participant judged each of the essentialism scales as applying to social categories in general. In this way, the possibility that participants have different degrees of essentialist belief can be determined, together with the possibility that these different degrees of belief along the 9 scales show the same correlational structure as observed in the analysis presented above.

The ratings were obtained by creating a single variable for each of the 9 scales for each participant by averaging the ratings across the 36 categories regardless of the domain. By averaging over categories, the data were reduced to

a matrix of 123 participants x 9 scales, and participants' scores for each scale indicated how strongly they considered social categories in general to be essentialised on that scale. Subsequently, the reliability of individual participant differences for each one of the nine scales was calculated (see Table 5.1).

Cronbach's alpha ranged from .837 to .970 (M = .918), indicating a strong and reliable scaling of individual participant differences for each scale. This result allowed proceeding to the next step, where correlation between the scales was analysed and a principal components analysis was run.

Scales	Reliability	Extraction	Mean	St. Deviation
Discreteness	.897	.443	3.23	0.76
Uniformity	.954	.656	4.78	1.16
Informativeness	.924	.529	4.23	0.91
Naturalness	.894	.571	3.40	0.79
Immutability	.837	.459	3.73	0.62
Stability	.899	.516	3.67	0.82
Inherence	.951	.504	4.13	1.13
Necessity	.933	.187	3.17	0.96
Exclusivity	.970	.347	4.62	1.36

Table 5.1. Descriptive statistics for the nine measures of essentialism

The scree plot (see Figure 5.1) showed a relatively weak structure but with two fairly clear components accounting for the 25% and 22% of the variance respectively.

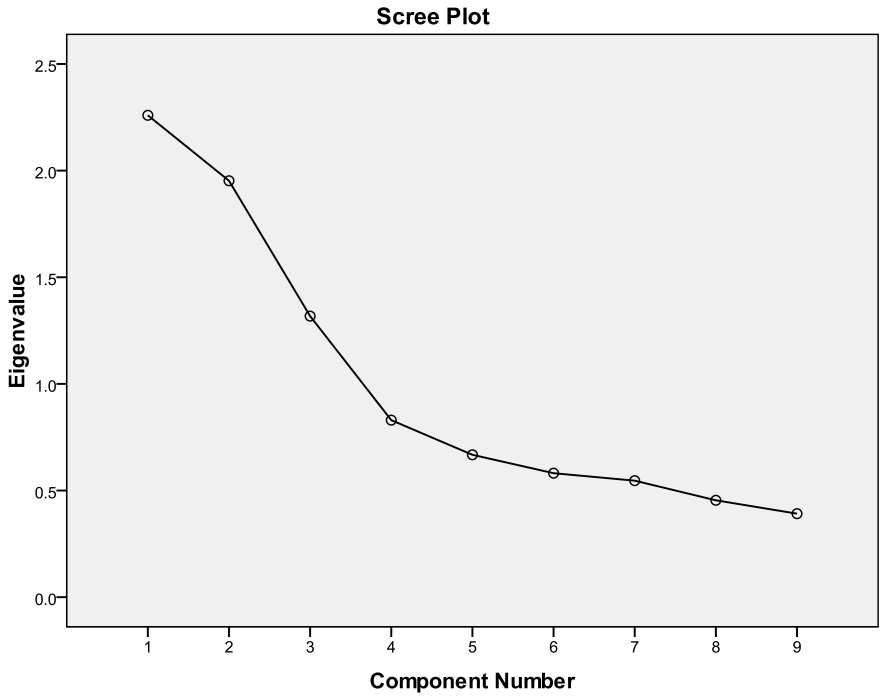

Figure 5.1. Factor Extraction of Factor 1 and Factor 2, Study 1

These two components were extracted and subjected to Varimax rotation. (see Table 5.2 for the factor loadings and relative importance of Factor 1 and Factor 2 based on the Rotated Component Matrix).

Measure	Factor 1	Factor 2
Naturalness	.751	
Stability	.718	
Discreteness	.665	
Immutability	.665	.132
Necessity	.421	
Uniformity		.810
Inherence	.166	.690
Informativeness	-.251	.683
Exclusivity		.585
Eigen Values	2.259	1.952
% of Variance	25.104	21.693
Sum of Variance	46.797	

Table 5.2. Relative importance of Factor 1 and Factor 2 based on the Rotated Component Matrix

Figure 5.2 shows a factor structure that was remarkably similar to the one generated in Haslam et al.'s (2000) study, based on the matrix of categories by scales averaged over participants. It can be observed that Informativeness showed a smaller negative loading on Naturalness compared to the previous analysis of Study 1 by social categories, but otherwise the structure is very similar.

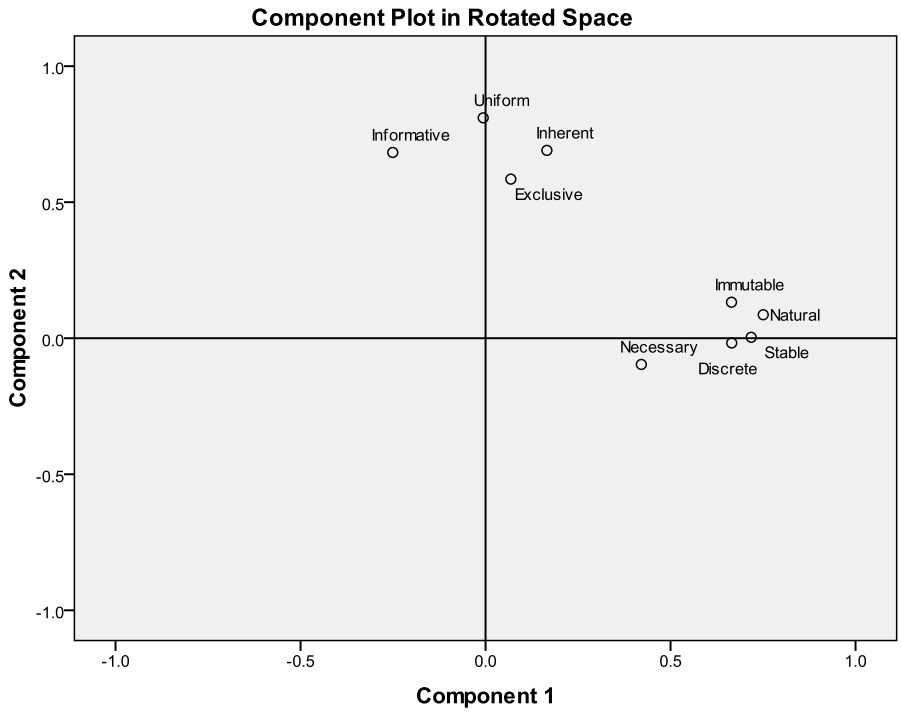

Figure 5.2. Factor Loadings for Factor 1 and Factor 2, Study 1

Figure 5.3 shows the distribution of participants across the two factors. While the majority are distributed around the centre of the space, there are also some clear outliers with strong styles of using the nine scales in different ways.

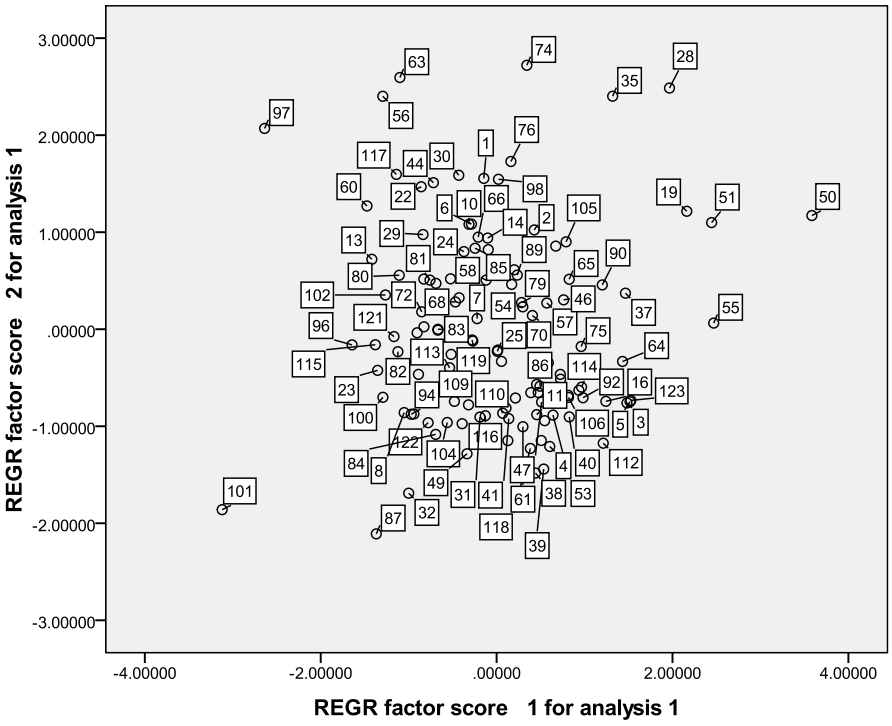

Figure 5.3. Location of all participants along Factor 1 and Factor 2

Sardinian sample

The same data analysis carried out for Study 1 was run for Study 2. The scales' reliability ranged from .852 to .964 (M= .922). Similarly to Study 1, two components were identified, explaining 28% and 21% of the variance respectively (see Figure 5.4). Interestingly they did not correspond to the structure observed in Figure 5.1. In fact, for Study 2's sample, the Natural Kind scales of Naturalness, Stability, and Immutability combined with the Entitative scales of Informativeness and Uniformity on the first component (see Figure 5.5).

Scales	Reliability	Extraction	Mean	St. Deviation
Discreteness	.924	.443	3.23	0.76
Uniformity	.949	.656	4.78	1.16
Informativeness	.938	.529	4.23	0.91
Naturalness	.867	.571	3.40	0.79
Immutability	.852	.459	3.73	0.62
Stability	.906	.516	3.67	0.82
Inherence	.947	.504	4.13	1.13
Necessity	.949	.187	3.17	0.96
Exclusivity	.964	.347	4.62	1.36

Table 5.3. Descriptive statistics for the nine measures of essentialism

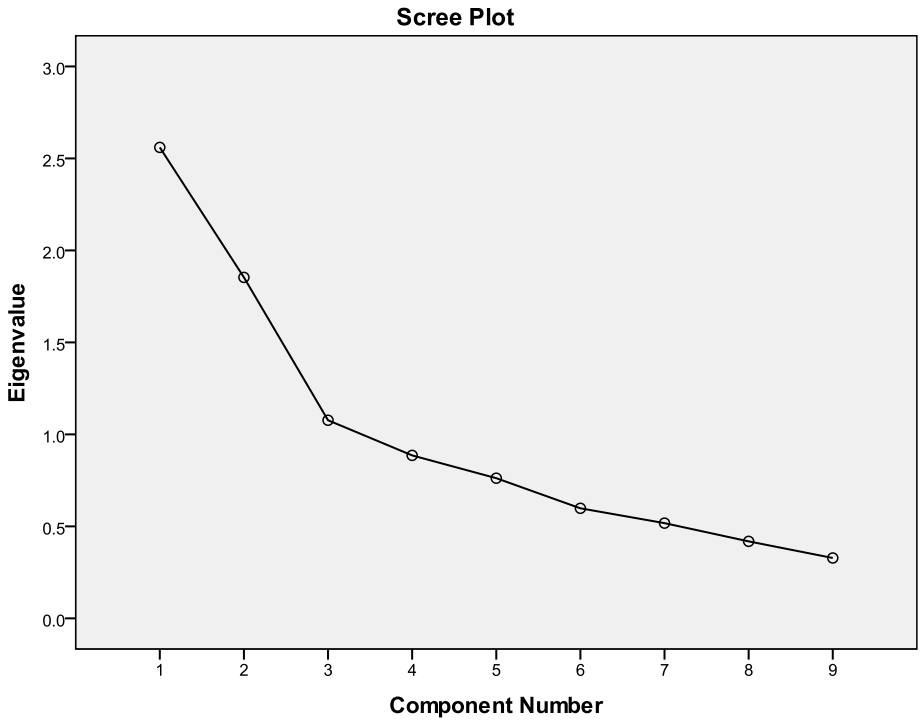

Figure 5.4. Factor Extraction of Factor 1 and Factor 2, Study 2

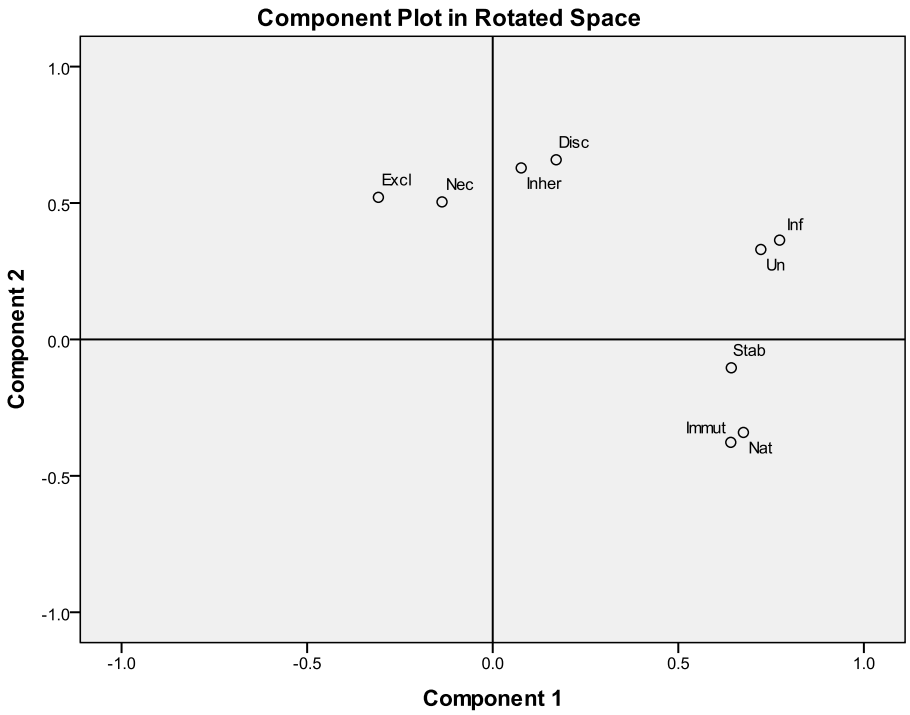

Figure 5.5. Factor Loadings for Factor 1 and Factor 2, Study 2

5.2.1. Discussion

The conclusion of the London analysis was that 47% of the variance of participant averages across the nine scales was captured by two components, which clustered the scales in the same way as shown by the analysis of category averages. This remarkable result provides additional validity to the meaningfulness of the two dimensions identified as Natural Kind and Entitativity. In respect to participant differences, people systematically differ along these same two dimensions when judging social categories in general. Some see social categories as natural whereas others as non-natural, and independently some see social categories as entitative while others as non-entitative.

It is unclear why the Sardinian sample has generated a different structure for individual differences, particularly in consideration of the fact that the analysis of the social category x scales dataset confirmed the two dimensions of essentialism suggested by Haslam et al. (2000). However, the results underline the fact that no relation is required between the structure of the category x scale and the participant x scale matrices, which makes the finding of the close match for the London sample the more interesting.

In view of these results, it is meaningful to use the two dimensions as the basis for the development of a psychometric scale that aims at measuring the extent of a person's essentialist thinking for the London population. Some representative scales and categories were therefore selected in order to create a short questionnaire that would measure the two dimensions identified here.

5.3. Definition of cognitive style and theories about cognitive styles

In Study 3, I hypothesised that individuals may differ in the essentialising style they adopt, and that some of them may show beliefs that are explained through entitative attributes whereas some can hold beliefs that reflect Natural Kind attributes. Although the hypothesis of psychological essentialism as a personal style that varies across individuals has not been previously explored, it holds interesting implications. In fact, although little evidence is currently available, work on cognitive styles represents a rich source of evidence concerning individual differences in the way people process information and solve problems. Therefore, this section will explain what a cognitive style is and will present a summary of some of the most relevant theories on cognitive styles. This should provide a link between the literature and Study 3.

Cognitive styles can be defined as individuals' preferred pattern of organising and categorising the external world (Kozhevnikov, 2007). One of the earliest classifications of cognitive styles and types was attempted by Carl Jung in his writing Psychological Types (1921), and later systematised by Myers and colleagues into the MBTI Test (Myers et al., 1998). Jungian psychological type -- later termed *cognitive style* by the American literature -- provides standardised parameters for the understanding of individual characteristics and differences in the way information is processed (sensing or intuiting) and decisions are made (thinking or feeling) (Myers & McCaulley, 1985).

The notion of cognitive style was introduced by Klein and Schlesinger (1951) by looking at the relationships between personality traits and individual differences in perception. Under their view, cognitive styles are a way to adapt to the environment and to relate to it. Thus, there is not a single way of solving problems, and every method individuals implement is valuable. Under this view individual's choice underlies preferences rather than abilities. However, Kozhevnikov (2007) explained that this position may determine some conceptual problems since there are more and less efficient ways of solving problems.

The first experiments about differences in cognitive styles were conducted in the 1940s and 1950s by researchers like Hanfmann (1941), Klein and Schlesinger (1951), and Witkin and Ash (1948). Hanfmann (1941) observed two different styles in the solution of tasks where individuals are required to group blocks, and showed that whereas some individuals make use of a conceptual approach, others use a more perceptual approach.

Further research aimed at linking individuals' personality traits with their perceptual abilities and social behaviours was conducted by Witkin et al. (1954),

who found that individuals showed a personal pattern of abilities that remained stable throughout the duration of the experiment for each of the tasks. Accordingly, they distinguished two categories: individuals classified as field-dependent relied on environmental cues and social referents, and individuals classified as field-independent relied less on those sources of information. Field-independent subjects appeared more impersonal in their social interactions, showing a greater physical and psychological distance from other individuals and a certain extent of separation from the environment.

Further work by Witkin and Goodenough (1981) revealed a group of individuals that did not fall in either of the two categories. Witkin et al. (1962) argued that the two different styles reflect an adaptive way of interacting with the reality, but whereas field-dependence reflects primary mechanisms, field-independence appears later in life with the development of better perceptual abilities. This conceptualisation was relevant for representing the first investigation on cognitive styles and for stimulating subsequent work.

At present, there are two main approaches to the study of cognitive styles, which are the cognitive-centred approach and the learning-centred approach. The former one represents the classic approach and is concerned with individual abilities in problem solving, whereas the latter emphasises individual differences in learning settings and the importance of assessing personal abilities. The cognitive-centred approach includes several theories that describe different cognitive styles, like the Assimilator-Explorer, Perceptual-Functioning, Tolerance of Ambiguity, Impulsivity-Reflectivity, Locus of Control, Constricted-Flexible Control, Field-Articulation, Conceptual Complexity, Adaptor-Innovator, and Holist–Serialist.

These approaches are briefly outlined in the next part of the section.

The Assimilator-Explorer concept was elaborated by Kaufmann (1989) following work on problem solving where he observed that depending on their problem-solving individuals can be distinguished between *assimilators* and *explorers*. In order to measure the two different styles (e.g., novelty-seeking versus familiarity-seeking), a 32-item self-reporting questionnaire was developed.

The Perceptual-Functioning theory was elaborated by Witkin (1962) under the theory of field-dependence with a focus on individual styles in perceptual abilities. Field-independent subjects rely on environmental social cues, whereas field-independent subjects are those who do not do the same. This style was the first one to be theorised and measured through a number of tests among which the Rod-and-Frame Test, the Body-Adjustment Test, and the Embedded Figures Test (EFT).

The Tolerance of Ambiguity cognitive style was theorised by Klein and Schlesinger (1951) and consists in how subjects perceive ambiguous situations, which -- according to Budner (1962) -- are those in which cues are reduced so that individuals may find difficult to categorise an event. Some individuals perceive ambiguous situations as desirable, whereas others see them as threats. The concept of intolerance of ambiguity was compared to rigidity by Budner (1962) who highlighted their close connection: if intolerance of ambiguity is related to the way people evaluate certain situations, rigidity consists in the manifestation of individual tendencies regardless of the situation and it is a more fixed pattern of response.

In classic experiments about tolerance of ambiguity participants receive instructions about a target object being still, when in fact the object may give the perception of apparent movement. This style is measured through the Budner Intolerance for Ambiguity Scale (1962).

The Impulsivity-Reflectivity cognitive style was introduced by Kagan (1965) following studies on conceptual tempo, and is measured through the Matching Familiar Figures Test (MFFT). Conceptual tempo consists in an individual's speed at making decisions in ambiguous situations. Kagan (1965) observed that individuals fall into two different groups, which he classified as *cognitively impulsive* and *cognitively reflective.* Cognitively impulsive individuals are more likely to adopt a problem-solving style that reviews different options quickly and makes fast decision. On the other hand, cognitively reflective individuals prefer to evaluate the different options carefully in order to decrease errors (Kagan, 1965; 1966).

Locus of Control (internal versus external) consists in the style adopted when making attribution of causes of events, and was first theorised by Rotter (1966). Individuals with an internal locus of control believe that they can control their lives and regard their actions as important. In contrast, individuals with an external locus of control believe that their life is controlled by external agents hence their actions are not determinant.

Constricted versus Flexible Control represents the style adopted in objects categorisation under contradictory instructions and was theorised by Gardner et al. (1959). Subjects who show a constricted style find contradictory situations disturbing and tend to rely on the most obvious features of the objects,

while subjects who use a flexible control style produce more differential responses about the target objects.

The Field Articulation (element articulation versus form articulation) concept was theorised by Bieri (1955) and Messick (1976) following studies about perception of complexity. Element articulation consists in relating discrete elements together and differentiating them from the background, while form articulation considers large forms instead. This style is measured through the Design Variations Test.

The Conceptual Complexity (abstract versus concrete) theory was first elaborated by Harvey, Hunt, and Schroder (1961), and is measured through the Sentence Completion Test. This theory considers people's tendency to process information in a concrete or abstract way: concrete individuals are those who show less differentiation and integration, and abstract individuals are those who show the opposite tendency.

The Adaptor-Innovator Style was elaborated by Kirton (1976; 1977) and measured through a self-reporting inventory, the Kirton Adaptor-Innovator Inventory (KAI). Kirton described cognitive styles as a strategy to respond to environmental changes and to employ abilities in problem solving, decision making, and creativity. He argued that every individual has a personal way in the use of these strategies, and that personality traits play an important role on that. According to Kirton (1976; 1977), cognitive styles are developed early in life and are stable over time. Individuals are distinguished between *innovators* (individuals who prefer doing things differently), and *adaptors* (individuals who prefer doing things better).

The Holist–Serialist concept was proposed by Pask and Scott (1972) in relation to problem-solving tasks. The holistic style (or hypothesis-led strategy) is employed by people who gather a big amount of information and focus on the big patterns, whereas the serialist style (or step-by-step strategy) is adopted by people who proceed for subsequent steps and consider small amounts of information at each step. It is measured through a number of problem-solving tasks.

The theories above represent an overview of the most influential conceptualisations in support of the view that individuals employ different approaches in problem solving and in the perception of the environment. They are based on studies conducted on samples of normally developing individuals. The next section discusses current theories about cognitive styles in individuals affected by Autism Spectrum Disorder.

5.4. Autism Spectrum Disorder subjects and their cognitive style

Essentialist beliefs in autistic and Autism Spectrum Disorder subjects have not been investigated so far. However, the occurrence of a certain rigidity in both their cognitive style and behaviour, as argued by authors like Bertoglio and Hendren (2009) and Lewis et al. (2007), suggests that if Autism Spectrum Disorder subjects hold essentialist beliefs these would be clear-cut, an either "white" or "black" vision of things. This aspect is addressed by the second part of Study 3, with the assumption that Autism Spectrum Disorder individuals would be rather extreme in their beliefs along both the entitative and the Natural Kind factor. Research on Autism Spectrum Disorder has been incredibly fertile in the last two decades.

This section discusses some of the most accredited positions in relation to work on the cognitive aspects that are observed in the autism spectrum disorder, and work on the emotional and social aspects.

By Autism we intend a neurodevelopmental disorder that can affect all the abilities of a subject at various degrees of severity, ranging from very severe to mild (Happé & Frith, 1996; Lord et al., 2000). Autism Spectrum Disorder includes a wide range of severity of which Asperger represents a milder variant that is usually diagnosed in late childhood (Frith, 2004), and which does not usually involve linguistic or cognitive deficits (White et al., 2006). Individuals that are affected by Asperger syndrome are referred to as high-functioning in relation to the other autistic subjects. Since Autism Spectrum Disorder encloses the full range of severity in relation to cognitive and interpersonal styles, the term will be consistently used throughout the thesis.

According to the most common positions of theorists, one of the biggest challenges for Autism Spectrum Disorder subjects is to talk about their emotions, and this may cause depression and anxiety (Frith, 2004). They usually show impairment in both the social and cognitive domain, although some high functioning subjects may not experience problems in their cognition. Problems in the social domain have been investigated under the concept of the *theory of mind* (or mentalising), which was first proposed by Baron-Cohen et al. (1985).

The theory of mind consists in the human ability to "read the mind" and to take into consideration desires, ambitions, purposes, and beliefs in the explanation of one's own and others' intentions and behaviours. In particular, it has been argued that autistic children fail three basic abilities: a) the ability to follow somebody else's gaze (due to poor eye contact); b) the ability to share

attention on objects of interest; and c) the ability to understand false-belief situations, or to understand them at the same age normally developing children do (Frith, 2001).

The theory of mind allows normally developing subjects to learn new knowledge and to understand the meaning of words. Research with high-functioning autistic subjects showed that also those with high IQ read minds differently and show delays and difficulties in tests of false belief attribution (Baron-Cohen et al., 2001). Frith (2002) claimed that regardless of their general intelligence, all autistic subjects suffer a reduced ability in the attribution of mental states.

The theory of mind theory represents a big step forward into the understanding of why autistic individuals lack social skills (Happé, 1997). However, a lack of understanding of perceptual and cognitive impairments in autistic subjects was addressed by Frith (1989) and Frith and Happé (1994), whose work led to the formulation of the central coherence theory (CC) (or weak central coherence theory, WCC), which is still one of the main theories in the explanation of autism.

The core idea of the central coherence theory is that individuals who suffer from autism fail to "see the big picture", and to appreciate the interaction of different contextual factors (Happé, 1999; Happé & Frith, 2006). This hypothesis has been empirically tested by Shah and Frith (1993) who looked at the high level of performance of people with autism in solving the Block Design subtest of the Wechsler intelligence scales and the Embedded Figures Test (Shah & Frith, 1993). These tests are usually challenging for normally developing

individuals who struggle to separate the pattern or background from the rest of the figure, whereas autistic subjects find this easier.

There is some agreement among theorists about the fact that subjects with autism show repetitive and rigid behaviours (Bertoglio & Hendren, 2009; Lewis et al., 2007). These can be distinguished between *lower-order motor actions* and *higher-order behaviours* (Lewis et al., 2007; p. 66). The first term refers to repetitive forms of behaviours, whereas the last one indicates complex behaviours that are connected to cognitive components among which the presence of rigid and fix schemes (Bertoglio & Hendren, 2009; Frith, 2004; Lewis et al., 2007; Pellicano et al., 2010). Rigidity in cognition involves an "obsessive desire for sameness, repetitive use of language, and narrow and circumscribed interests and [...] adherence to some rule or mental set" (Lewis et al., 2007; p. 66) and relates to failure in tasks that require flexibility (Lewis et al., 2007).

These positions constitute the theoretical framework for Study 3, which tested the hypotheses about the occurrence of higher levels of extreme judgements in Autism Spectrum Disorder subjects' essentialist beliefs than a sample of normally developing individuals.

5.5. Brief introduction on psychometrics

The present study aimed at creating an economical measurement of essentialist beliefs. Every measurement that is created in the field of the Social Sciences has to comply with the psychometrics' rules. The first laboratory of psychometrics was set up in Cambridge in 1887 by McKeen Cattel, and the theories he formulated are still in use. Psychometrics is the science that is concerned with the quality of assessments in the psychological field and with the

measurement of human cognition, contributing to some important discoveries. For example, some studies testified higher scores in IQ tests in Japanese people than Americans, and higher abilities of girls at comparing objects and at finding rhymes, whereas boys are usually better at solving arithmetic problems and induction tests (Rust & Golombok, 2009).

In the presence of differences among individuals there are a few explanations that scientists may decide to endorse (Rust & Golombok, 2009). For example they can consider differences (e.g., differences between boys and girls) in three ways: a) empirical results (in this task boys are better than girls); b) validity parameters (these results confirm the hypotheses and support the validity of the test); c) proof of the presence of a bias in the way the test was constructed. Therefore, it is fundamental to consider the role that social positions play in the design of a test (Rust & Golombok, 2009).

In recent days the interest of psychometrics has broaden to a number of different tests due to an increased need for selection and assessment in professional and educational settings. Psychometrics ensures accuracy in the measurements of individual processes, monitors against the occurrence of biases against certain group of subjects, and guarantees equity in the assessments of different social groups. The main distinction in the different tests used in psychometrics is between person-based tests and item tests: the first ones assess somebody's knowledge in a particular field, whereas the last ones assess individual dimensions such as personal attitudes, traits, and beliefs. The items of a test can be either open-ended or objective. Study 3 used the item-test typology with objective items.

Some aspects have been considered in the design of Study 3, among which the inclusion of some reverse-keyed items in the questionnaire. Thus, prior to the analysis stage all the reverse-keyed items were forwarded and pointed to the same direction. Another aspect that was considered in the design stage was item bias, which occurs when a certain item behaves differently from what expected because -- for example -- it is not suitable for a certain sample of participants due to language proficiency. Hence, a bias may occur because a test has been developed for a particular sample of people within a certain society and who speak the same language (Rust & Golombok, 2009). In this case people who are not native in the same language can be biased against by some of the items.

In order to verify the presence of item bias, it would be helpful to carry out a specific analysis of the items for the sample of subjects that is observed to be problematic with some of the items of the questionnaire, or for the sample with different demographics. When the analysis is run, the facility parameters for the analysis of this sample should be seen against the facility values of the item analysis of the other sample. According to the analysis, the problematic items should be then eliminated or reworded. In Study 3 the sample was composed of a group of participants from different cultural contexts. Hence, English proficiency of the participants was guaranteed by the requirements of City University for undergraduate students, which for foreigner students is a minimum IELTS score of 6.5. Also, the items were created in a way that they were brief and simple in the content, with each item being composed of a single short sentence.

5.6. Study 3

5.6.1. Methods

5.6.2. Pre-test

In order to create a number of items suitable for the study, a total of 64 items were written and tested during a pre-test stage with N = 19 participants. The items were created by taking two representative scales for each essentialism dimension (Naturalness and Discreteness for Natural Kind; Informativeness and Uniformity for Entitativity), and four different social categories (Intelligence, Personality Traits, Social Class, and Religious groups). Each item included one of the four social categories to be measured on one of the four essentialism scales on a five-point Likert scale (see Table 5.12a, 5.12b, 5.13a, and 5.13b in the Appendix section for item wording, and Table 5.14 for item coding).

Some of the items showed low standard deviation, with the lowest value observed for the item coded as PDR1 (Sd = 0.5). All the items that showed low standard deviation at this stage were reworded and revised. Overall, the items of version 1 (N = 9) of the questionnaire showed good facility with all means lying between 2 and 4, while the items of version 2 (N = 10) had a couple of means that were too low (e.g., CNF1, M = 0.9) or too high (e.g., PIR1, M = 4.2). A reliability analysis of the items showed good reliability for most of the items (see Table 5.4).

Version	Scale	Item number	Number of participants	α
1	**All Scales**	32	9	.579
2	**All Scales**	32	10	.867
1	**Natural Kind**	16	9	.619
2	**Natural Kind**	16	10	.602
1	**Entitativity**	16	9	.714
2	**Entitativity**	16	10	.888

Table 5.4. Reliability analysis for all scales and by domain, pre-test stage

On the basis of these results, 64 items were retained and distributed in two questionnaires of 32 items each. Each questionnaire counted 16 items investigating Natural Kind aspects, and 16 items investigating Entitativity aspects. Each set of 16 items counted 4 items about Religion, 4 items about Social Class, 4 items about Personality Traits, and 4 items about Intelligence.

5.6.3. Investigation 1

5.6.3.1. Participants

A total of 109 participants completed the questionnaire but two of them were excluded due to completing only part of the task, and a total of 107 participants were retained for the study (version 1 questionnaire N = 49 participants; version 2 questionnaire N = 58). The study was run during a statistics lecture attended by first-year undergraduate students at City University, London, and the participants received one credit course in exchange.

5.6.3.2. Instructions

The questionnaire was presented as a four-page booklet with the first page providing some general instructions for its completion, as follows:

"Hello! This is a study on the perception of social and individual attributes. I would like to investigate how people perceive individuals who belong to some social or psychological categories. For this reason, you will be asked to rate a number of statements about religious, social, and individual attributes. There are not right or wrong answers to these questions but your answers are vital to the success of this study, so please think carefully before responding.

Thank you for your help."

5.6.3.3. Results

Two different analyses were run, one for each version. The descriptive statistics showed that the items had sufficient variability and reasonable facility (see item statistics in Table 5.5 and 5.6 for the Natural Kind items for versions 1 and 2; and Table 5.7 and 5.8 for the Entitativity items for versions 1 and 2).

At this stage, it is meaningful to note that the structure of the questionnaire meant that there were two subsets of items relating to each of four different scales, which could therefore be analysed separately.

Items	Mean	Std. Deviation	N
PNF1	3.06	.876	49
CNF2	3.33	1.214	49
RNF2	3.53	1.023	49
PDF1	3.67	.922	49
CDF2	3.27	.953	49
RDF2	3.41	1.079	49
IDF2	3.96	.912	49
INF2	4.14	.866	49
INR1rev	2.86	1.021	49
PNR2rev	2.92	.909	49
CNR1rev	3.14	.791	49
RNR2rev	2.14	1.021	49
PDR2rev	3.16	.850	49
CDR2rev	2.92	.786	49
RDR1rev	3.00	1.000	49
IDR1rev	3.33	1.144	49

Table 5.5. Item statistics version 1 for set 1 (N = 16)

Items	Mean	Std. Deviation	N
PNF1	3.14	.782	58
CNF2	3.31	1.231	58
RNF2	3.29	1.092	58
PDF1	3.59	.899	58
CDF2	3.50	.843	58
RDF2	3.26	1.305	58
IDF2	3.83	.976	58
INF2	4.28	.833	58
INR1rev	3.41	.956	58
PNR2rev	3.26	.807	58
CNR1rev	3.36	.810	58
RNR2rev	2.00	.838	58
PDR2rev	3.07	.814	58
CDR2rev	3.14	.868	58
RDR1rev	3.09	.923	58
IDR1rev	3.28	.812	58

Table 5.6. Item statistics version 2 for set 1 (N = 16)

Items	Mean	Std. Deviation	N
IIF2	3.65	.948	49
PIF2	2.04	.706	49
CIF2	2.90	1.005	49
RIF1	3.45	.937	49
IUF1	3.35	1.011	49
PUF1	2.65	.855	49
CUF2	2.78	1.104	49
RUF2	2.69	.918	49
IIR2rev	3.51	.845	49
PIR2rev	3.12	1.033	49
CIR2rev	3.37	.929	49
RIR1rev	3.31	1.004	49
IUR3rev	2.69	.847	49
PUR1rev	3.41	.934	49
CUR1rev	2.84	.850	49
RUR1rev	2.57	.764	49

Table 5.7. Item statistics version 1 for set 2 (N = 16)

Items	Mean	Std. Deviation	N
IIF2	3.69	1.079	58
PIF2	2.26	.715	58
CIF2	2.93	1.212	58
RIF1	3.02	1.192	58
IUF1	3.36	1.003	58
PUF1	2.50	.884	58
CUF2	2.76	.942	58
RUF2	2.64	1.003	58
IIR2rev	3.43	1.061	58
PIR2rev	3.03	.794	58
CIR2rev	3.38	.970	58
RIR1rev	3.34	1.052	58
IUR3rev	2.57	.797	58
PUR1rev	3.40	.836	58
CUR1rev	2.91	.732	58
RUR1rev	2.81	.868	58

Table 5.8. Item statistics version 2 for set 2 (N = 16)

Reliability

The reliability analysis was run in two stages. At the first stage the analysis per scales was calculated: all scales showed good reliability with the exception of Naturalness (see Table 5.9).

Version	Scale	Item number	Number of participants	α
1	**Discreteness**	8	49	.657
2	**Discreteness**	8	58	.660
1	**Naturalness**	8	49	-.274
2	**Naturalness**	8	58	.131
1	**Informativeness**	8	49	.628
2	**Informativeness**	8	58	.683
1	**Uniformity**	8	49	.730
2	**Uniformity**	8	58	.706

Table 5.9. Reliability analysis per scale

The second stage considered the reliability analysis by domain (Personality, Religion, Social Class, and Intelligence), as shown in Table 5.10.

Version	Domain	Item number	Number of participants	α
1	**Personality**	8	49	**.327**
2	**Personality**	8	58	**.170**
1	**Social Class**	8	49	**.590**
2	**Social Class**	8	58	**.519**
1	**Religion**	8	49	**.294**
2	**Religion**	8	58	**.623**
1	**Intelligence**	8	49	**.406**
2	**Intelligence**	8	58	**.307**

Table 5.10. Reliability analysis by domain

The reliability analysis by domain showed significance only for some of the domains, like Social Class (both versions), and Religion (only for version 2 of the questionnaire). The Personality and Intelligence domains came out with low reliability, suggesting that people do not systematically differ in their degree of essentialising either of them.

The results showed that all the items are correlated to a degree, but they are not organised into a systematic structure. These findings represent a first step into the design of an economic measurement of essentialism beliefs that can be used to test beliefs about social categories and personal traits. However, the weak values of α suggest that further work is required in relation to the items and their wording. In order to investigate the reliability results in more depth, further analysis was carried out by picking up 8 random items that had no relation to each other. The analysis resulted in a value of α = .380 on average, which is very similar to the values of the analysis per scales, suggesting that the values of α should be treated carefully.

5.6.4. Investigation 2

5.6.4.1. Participants

A sample of 22 subjects suffering from Autism Spectrum Disorder took part to the study as part of a broader investigation on memory carried out by the Autism Research Group at City University. No age and gender information was collected. All participants with Autism Spectrum Disorder had received their diagnosis according to DSM-IV-TR (American Psychiatric Association, 2000) criteria from clinicians through the national health services and assessment with

the Autism Diagnostic Observation Schedule (Lord et al., 2000) provided further corroboration of their diagnosis.

5.6.4.2. Instructions

The subjects were explained the nature of the study by an investigator, and were allowed to finish the task in their own time. They completed version 1 of the same questionnaire as in the first part of the study.

5.6.4.3. Results

The results of the investigation showed some small difference between the sample of normally developing subjects and the sample of Autism Spectrum Disorder subjects, as shown in Table 5.11. However, neither the Natural Kind nor the Entitativity scales showed a significant difference in means.

	Natural Kind	**Entitativity**	**Natural Kind**	**Entitativity**
	Mean	Mean	St. Deviation	St. Deviation
Autism Spectrum Disorder Sample	53.3	47.4	3.9	3.5
Control sample	51.8	48.3	5.4	6.9

Table 5.11. Descriptive statistics for the Autism Spectrum Disorder and the control sample on the Natural Kind and Entitativity scales

5.7. Analysis of endpoint responses

An interesting point of investigation was the analysis of endpoint responses. It has been argued (e.g., Diesendruck & Gelman, 1999; Kalish, 1995, 2002) that a marker of essentialist thinking is the belief that categorization is all-or-none. Using the endpoints of the scales would therefore be an indicator of essentialist thinking. The results suggest that participants made varying use of endpoint responses (See Figure 5.6). The group of normally developing subjects used endpoint responses 12% of the time (SD = 11.8), and the Autism Spectrum Disorder sample used endpoint responses 14.6% of the time (SD = 11.7). Difference between the two samples was not significant.

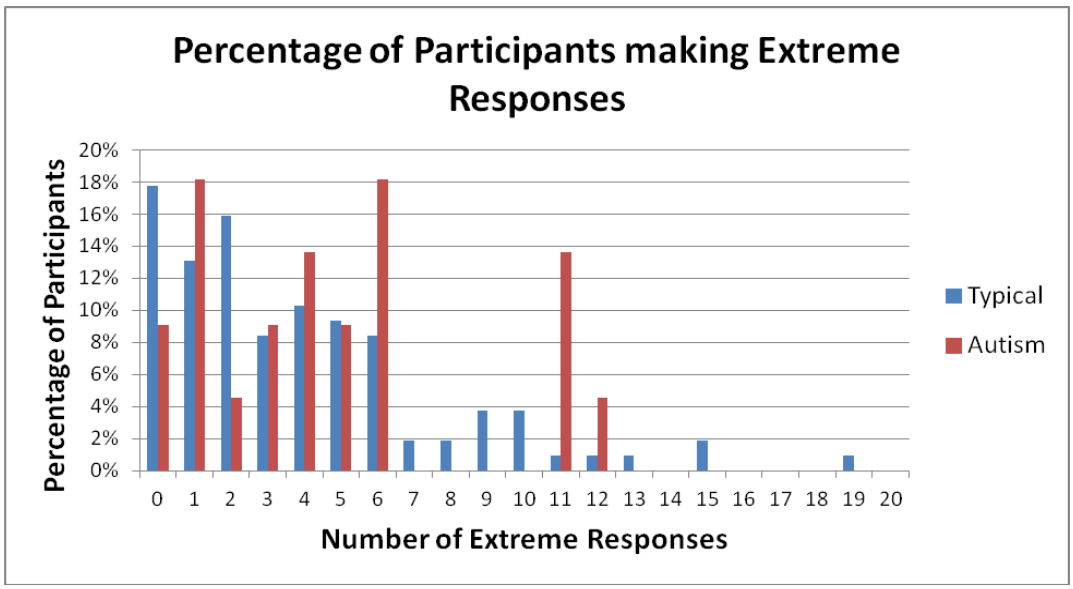

Figure. 5.6. Use of extreme responses (maximum possible = 32)

5.8. Discussion

This study was aimed at designing an economical measurement of essentialist beliefs about social categories based on the two dimensions of Entitativity and Natural Kind, as indicated by previous findings (see Haslam et al., 2000). The design procedure involved a pre-test stage in which the items were tested on a small sample of subjects. The items retained for the study (N = 64) were subsequently tested on a sample of N = 107 participants. The reliability analysis revealed different results for the analysis by scales and by domain. The reliability by scales showed good reliability for all scales (with the highest valued showed by Uniformity) except for Naturalness. On the other hand, the analysis by domain showed poor reliability for most domains with the exception of Social Class for both versions of the questionnaire.

Further reliability analysis that was run by picking up the items at random showed similar values with the analysis by scales. These results suggest that further work on the design of the items is required in order to improve their reliability and to have a sufficient number of items for each domain and each scale of the questionnaire. However, the study also showed some underlying construct, which was highlighted by the reliability analysis by scales that provided good results for most scales.

Some points can be considered in relation to the results. The data were reasonably reliable, with alphas ranging from .6 to .9, but the subscale structure did not come out as predicted. A suggestion for that could be that there may be just one dimension of individual variability in essentialist beliefs, not two as suggested by the analysis of Study 1.

The second part of the study explored essentialist beliefs about social categories in subjects affected by Autism Spectrum Disorder. Although this aspect had not been explored by previous work, my hypothesis was that Autism Spectrum Disorder subjects would show more extreme judgements than the control population. This expectation was based on researchers' positions about cognitive rigidity and fixity (Bertoglio & Hendren, 2009; Frith, 2004; Lewis et al., 2007; Pellicano et al., 2010). Although the present study showed that differences between the two samples are very small, this result could be due to the sample's size. Hence, my suggestion is that further investigation is required and that a larger sample of subjects could provide evidence for a stronger effect.

However it should be noted that if a difference in essentialist thinking had been a major part of the autism syndrome a large effect would have been expected. Given the lack of evidence for an effect in this study, it can be concluded that either the effect is not large, or that the measures used here were not sufficiently sensitive to the hypothesised difference in thinking. Also, results on subjects affected by the Autism Spectrum Disorder could reflect low power because sample size was small. If an effect is present it would not be large.

5.9. Appendix

Code	Item
INR1	Intelligence is the result of artificial factors such as education and environment
PNF1	Personality attributes are caused by biological factors such as genes and hormones
CNF2	People naturally belong to a social class
RNF2	Religious beliefs are the product of a natural individual attitude
IIF2	It is possible to know a lot about someone from knowing that they are intelligent
PIF2	Personality attributes are very informative of people
CIF2	Knowing that someone belongs to a social class might reveal a great deal of that person
RIF1	The fact that someone belongs to a certain religion is very informative about that person
IUF1	People who are intelligent form a uniform group and share many characteristics
PUF1	Personality attributes make people very similar to each other so that they share many characteristics
CUF2	People who belong to the same social class compose a relatively uniform group and share many characteristics
RUF2	People who belong to the same religious group can be very similar to each other and have many things in common
PDF1	Personality attributes are generally clear-cut and observable from the outside
CDF2	It is usually clear what social class someone belongs to
RDF2	Religions are categories with clear and sharp boundaries: people can either belong to one religion or to another
IDF2	Intelligence is generally clear-cut and observable from the outside

Table 5.12a. Set of items utilised in version 1, part 1

Code	Item
INF2	Intelligence is fixed at birth rather than acquired over life
PNR2	Personality attributes are caused by artificial factors such as education and environment
CNR1	Social classes are an unnatural way of organizing societies
RNR2	It is not natural for the human species to develop religious beliefs
IIR2	The fact that someone is intelligent does not tell you very much about that person
PIR2	The fact that someone has a certain personality says little about their other characteristics
CIR2	The fact that someone is a member of a certain social class says little about their other characteristics
RIR1	The fact that someone is a member of a certain religion says little about their other characteristics
IUR3	People who are intelligent are very dissimilar; they do not have many things in common
PUR1	The fact that some people share similar personality attributes does not make them similar in other ways
CUR1	People who belong to the same social class do not form a uniform group; their members do not share many characteristics
RUR1	People who belong to the same religion do not form a uniform group; they do not share many characteristics
PDR2	Personality attributes are fuzzy qualities
CDR2	It is difficult to tell what social class someone belongs to
RDR1	It is usually difficult to tell what religion someone belongs to
IDR1	Intelligence is an indefinite quality rarely observable from the outside

Table 5.12b. Set of items utilised in version 1, part 2

Code	Item
INF2	Intelligence is a quality completely unrelated to biological inheritance
INR2	Intelligence is fixed at birth rather than acquired over life
PNF1	Personality attributes are caused by biological factors such as genes and hormones
PNF2	Personality attributes are fixed at birth rather than acquired over life
CNF1	Societies naturally organize themselves in social classes
CNF2	People naturally belong to a social class
RNR1	Religious beliefs are the result of artificial factors such as education and environment
RNR2	It is not natural for the human species to develop religious beliefs
IIF2	It is possible to know a lot about someone from knowing that they are intelligent
IIR2	The fact that someone is intelligent is very informative about that person
PIR1	Personality attributes are uninformative of people
PIR2	The fact that someone has a certain personality says little about their other characteristics
CIR2	The fact that someone is a member of a certain social class says little about their other characteristics
CIR1	The fact that someone belongs to a certain social class is uninformative about that person
RIR1	The fact that someone is a member of a certain religion says little about their other characteristics
RIR2	The fact that someone belongs to a certain religion is uninformative about that person

Table 5.13a. Set of items utilised in version 2, part 1

Code	Items
IUR3	People who are intelligent are very dissimilar; they do not have many things in common
IUR2	A group of intelligent people can include dissimilar individuals
PUR1	The fact that some people share similar personality attributes does not make them similar in other ways
PUR2	A group of people with similar personality attributes can include individuals who are dissimilar in other ways
CUR1	People who belong to the same social class do not form a uniform group; their members do not share many characteristics
CUR2	People who belong to the same social class can be very dissimilar; they might not have much in common
RUF1	People who belong to the same religious group compose a uniform group and share many characteristics
RUF2	People who belong to the same religious group can be very similar to each other and have many things in common
IDR1	Intelligence is an indefinite quality rarely observable from the outside
IDR2	Intelligence is a variable quality with no sharp dividing line; varying degrees of intelligence can occur in people
PDF1	Personality attributes are generally clear-cut and observable from the outside
PDF2	Personality attributes are definite qualities in people
CDF1	Social class membership is a relatively definite quality in people
CDF2	It is usually clear what social class someone belongs to
RDR1	It is usually difficult to tell what religion someone belongs to
RDR2	Religions are fuzzy categories: people can belong to a religion in varying degrees
IUR3	People who are intelligent are very dissimilar; they do not have many things in common

Table 5.13b. Set of items utilised in version 2, part 2

Code	Domain	Code	Scale
C	Class	D	Discreteness
R	Religion	N	Naturalness
I	Intelligence	I	Informativeness
P	Personality	U	Uniformity

Table 5.14. Scales and domains coding

Chapter 6:

Categorisation of personality traits: an investigation into the role of verbal and visual information

6.1. Introduction

This chapter describes a study that investigated the mechanisms involved in social categorisation and that considered three variables: facial stimuli, neutral information about a target person's personality, and information about a target person's behavioural response during a social interaction. The study was conducted within the theoretical framework of work on essentialist beliefs and person construal, and theories about personality traits.

Theorists describe essentialism as a mechanism that allows people to make sense of the physical and social world, that is automatic and pervasive (Gelman, 2003; Medin & Ortony, 1989), and that is thought of as an essential component of categorisation (Gelman, 2003) and thinking (Medin, 1989). Moreover, essentialism favours understanding of the reasons why people are they way they are (Yzerbyt et al., 2004): individuals believe that personality traits are shaped by social factors like exposure to peers, culture, and education, and that they are deep aspects of somebody's personality (Rangel & Keller, 2011).

The analysis of the data from Study 1 and 2 conducted as a background analysis for Study 3 (see discussion in Chapter 5) showed that people have their own personal style in essentialising, and that their style varies along the Entitativity or Natural Kind dimension. In light of these results, Entitativity and Natural Kind are to be seen not only as the two main components of essentialist beliefs, but also as a continuum line along which different styles of categorisation are found. This finding was the basis for the design of an economical scale for the measurement of essentialist beliefs about social categories and personality traits through the use of four measures.

Also, Study 3 explored whether differences in the way categories are essentialised occur between subjects affected by Autism Spectrum Disorder and normally developing subjects.

As discussed at the beginning of Chapter 5, individual differences in the way individuals essentialise are observed among a sample of normally developing subjects, raising a number of questions about social categorisation. One of these questions was about the mechanisms that influence essentialist beliefs and in particular the extent to which verbal and visual information about a target individual is determinant in the categorisation of that individual. In every day social interactions our perceptual skills are greatly stimulated by visual, olfactory, and auditory factors, and by the complexity of the cues that those interactions generate.

However, categorisation applies to all situations where meaning is sought and may result from factors other than social interactions. For example, sometimes individuals make judgment of others by hearing a story where another person was involved, or by seeing somebody's face in a photograph. In particular, work by Townsend et al. (2000) showed that facial stimuli guide categorisation and decision making in individuals, and that visual information is used to both understand the kind of individual they are interacting with and to decide how they should respond to him/her.

Understanding social partners through facial cues reflects the employment of perceptual mechanisms that consider variant cues -- like emotional states -- and invariant cues -- like gender (Tarr & Gauthier, 2000). Categorisation is a fundamental mechanism in an individual's life that deals with events, environment, and other individuals, and that aids decision making: "the

mind tends to categorize environmental events in the grossest manner compatible with the need for action" (Allport, 1954; p. 21).

The study herein wants to tackle psychological essentialism from a different angle than the previous three studies of this thesis by looking at the mechanisms that underlie social categorisation. Study 4 looked at the interaction between facial stimuli and behavioural information at favouring extremeness of judgments towards a target individual's personality traits, and at the increase in the confidence ratings of perceivers. I consider behaviours and visual stimuli to play a central role in the construction of beliefs about individuals although little attention has been paid to it. Solomon Asch regarded external traits basic elements of inner features: "Things are what they appear to be; they have just the qualities that they reveal to sight and touch. The surroundings open themselves to us directly and almost without deviation, as if we were face to face with objective reality" (Asch 1952; pp. 46-47). This claim recalls positions about the link between outer appearances as a result of essences, and suggests that what is observed outside reveals some distinctive inner qualities.

In thinking of a human being, for instance, essences may range from the attribution of biological features (e.g., the genes, the DNA), hidden realities (e.g., the essence of being human), and individual's traits (e.g., the essence of someone's personality) (Gelman & Wellman, 1991). This study represents a first step into the understanding of the perceptual cues that favour person construal and that generate essentialist beliefs. The expectation for the results was that when administered a facial stimulus of either a man or a woman, the ratings for the personality traits of that person would become more extreme. This expectation in relation to higher values of extremeness matches previous

findings (e.g., Estes, 2004) in which natural categories are rated as more extreme than artefacts. According to the literature (Estes, 2004), also some effect would be observed in the confidence ratings, which should decrease. That is to say that if humans are perceived as Natural Kinds with essential personality traits, judgment of the presence or absence of those traits should be all-or-none, while uncertainty about the judgments would be expressed through reduced confidence, rather than by providing graded judgments.

The term person construal refers to the mechanism that guides individuals in their judgements and in the action they decide to take when interacting with a social partner, and which refers to the perception, interpretation, and understanding of other individuals. According to the literature, person construal is determined by the interplay between visual stimuli and the information stored in the semantic memory (Macrae et al., 2005). Similarly, Psychological Essentialism is a way to understand the world and especially social partners, which is characterised by the belief that deep features determine superficial ones (Medin & Ortony, 1989). This suggests that these two mechanisms may bear some similarities. For instance, the underlying mechanisms of both social construal and psychological essentialism may involve an interaction between perceptual and verbal stimuli and may be influenced by previous knowledge stored in memory.

In the study, the effect of behavioural information and facial stimuli are observed through changes in the extremeness of the responses and in the confidence at rating the items. Estes (2004) and Kalish (1995) showed that people use more extreme responses when categorizing natural kinds. Therefore extreme responses are a plausible measure of people judging that kinds are based

on essences. The effect might be different for confidence. In fact, Estes (2004) argued that when categorising natural kinds, extremeness of ratings and confidence may go in a different way. In his study, natural kinds were judged with more extreme ratings than artefacts, but with reduced confidence for borderline cases. Thus, one possible expected outcome for this investigation was that people would make more extreme judgments but feel less confident. On the other hand, confidence might also be increased as additional information is provided through the visual stimulus.

The present chapter has been organised into four sections. Although providing a complete review of the literature goes beyond the aims of the chapter, a brief overview of the relevant work that has been carried out in relation to the role of visual and verbal information in social categorisation is given in section 6.2. Section 6.3 begins with a definition of personality, and will then go on to discuss theories and models of personality and in particular the Five-Factor Model by McCrae and Costa (1985a; 1985c). The analysis of previous empirical accounts in this field of research will help to introduce the investigation presented in this chapter (Study 4) and discussed in section 6.4. The overall discussion of the findings is to be found in section 6.5.

6.2. The influence of facial stimuli and verbal information in social categorisation

Allport (1954) argued that sometimes people base their judgments of other individuals on demographic characteristics such as physical traits, and in particular race and gender-typical features. This tendency results from the belief that people who look similar had similar life experiences: they come from similar cultural and historical backgrounds that exposed them to the same

advantages and disadvantages. Also, they may have experienced similar treatments by other groups and may show similar interactional patterns with social partners (Pfeffer, 1983). This belief determines individuals from the same groups be attributed similar inner characteristics such as values, beliefs, and attitudes, and be classified into the same categories (Chatman et al., 1998).

It is the opinion of some authors that one of the most refined human skills in perception and a basic aid for social interactions is the ability to read faces (Haxby, Hoffman, & Gobbini, 2000). A Latin proverb of over 2000 years ago attributed to Cicero supported positions about the importance of faces: "vultus est index animi" (the face is the mirror of the soul). Some recent work has shown that by looking at somebody's face, perceivers collect a great amount of information, like age, gender, ethnicity, emotional, and mental state (Bruce & Young, 1998). This information is usually gleaned automatically and with great ease (Allport, 1954; Brewer, 1988; Bruce & Young, 1986; Fiske & Neuberg, 1990; Haxby, Hoffman, & Gobbini, 2000, 2002; Macrae & Bodenhausen, 2000), and is linked to semantic memory (Macrae et al., 2005).

Work by Macrae et al. (2005) investigated the mechanism that underlies personal construal. Their experiment was based on the Stroop Colour-Naming Paradigm and aimed to see how much information about gender and identity participants are able to collect in situations where the facial stimuli are not relevant to the task they are carrying out. In particular, they looked at the automaticity of information extraction. The study was run on a sample of fifteen undergraduate college students, and the results showed that the participants responded to gender and identity information automatically even if it was not related to the task.

Macrae et al. (2005) argued that even in situations where individuals extract face information unintentionally, the primary purpose of this mechanism is semantic. In fact, information gathered from the face of social partners allows the understanding of both other individuals and the environment. A further experiment by Cloutier, Mason, and Macrae (2005) showed that individuals are better at extracting categorical information (e.g., gender) than information related to the identity of a social target.

Bruce and Young (1986) suggested that the process of face perception may be characterised by two mechanisms that act separately: one part of the process deals with the identity of the owner of the face, while the rest of the process deals with other information, like age, gender, and emotional state. This claim has received broad support by further empirical investigation (e.g., Haxby, Hoffman, & Gobbini, 2000; 2002).

Work on social categorisation has been carried out also with the use of verbal material, for example by associating labels to the target stimuli. This work showed that categories are automatically activated by verbal inputs (Devine, 1989; Dovidio et al., 1986; Perdue & Gurtman, 1990), and that sometimes verbal inputs can overtake other relevant information and mask the complexity of social perception (Macrae et al., 2005). A study by Sinclair and Kunda (1999) suggested how verbal information can affect the perception of a social target. Further work by Macrae and Bodenhausen (2000) confirmed this thesis: in their study they manipulated information about the performance of a black doctor, providing their participants with some positive feedback first and with negative feedback afterwards.

They observed that in the first condition the positive information overcame negative attitudes towards the category “black” and enhanced the positive attitude towards the category “doctor”. In the second condition they observed the opposite mechanism, with the negative attitude towards the category “black” overcoming the category “doctor” and determining negative judgements of the target individual. In view of these results, Macrae and Bodenhausen (2000) suggested that the categorisation of an individual is affected by the occurrence of perceptual, motivational, and cognitive factors.

6.3. Definition of personality and of personality traits

Psychology has long dealt with the study of personality traits and Personality Psychology represents a fertile branch investigating psychological processes, and individual differences and similarities. One of the big focuses of Personality Psychology is the study of personality traits, which are measured through an individual’s patterns of behaviour (Costa & McCrae, 1997). Also, the definition of personality may vary in relation to which aspects of personality are taken into account.

According to Carver and Scheier (2000), personality is a “dynamic organisation, inside the person, of psychophysical systems that create a person’s characteristic patterns of behaviour, thoughts, and feelings” (p. 5). Temperament, motivation, values, attitudes, and beliefs constitute the main components of personality. Temperament is a disposition that is also observed in new-born babies and therefore believed to be genetically determined: it consists in a pattern of behaviours that remains consistent over time and in different situations; motivation is an individual’s drive towards a specific direction; values are beliefs about what is important and positive; attitudes are personal

dispositions towards other individuals, objects, and events; and beliefs represent the cognitive counterpart of attitudes.

One strand of literature that can be traced back to Cattel (1946) examined personality traits on the basis of several factors such as the nature of the traits, their measurement, and other sources among which are self-inventories, clinical settings, and psychological tests. This line of research considered 16 primary personality factors that are all represented in an individual personality sphere to a certain degree, and which are assessed through the 16 PF Personality Questionnaire (Cattel, 1946).

A different line of research was followed by Eysenck and Eysenck (1975), whose model of personality counted three dimensions only and included Introversion/Extraversion, Neuroticism/Emotional Stability, and Psychoticism. Later reviews of the theories above suggested that both models are limited for either considering too many or too few personality dimensions, and that the main dimensions of personality can be reduced to five (Goldberg, 1990). This belief is held by two different approaches that are often referred to as the same one (Saucier & Goldberg, 1996): the Big-Five and the Five-Factor Model. The first one tracks back to work by Galton (1884) and Goldberg (1990) and to the lexical approach adopted by Allport and Odbert (1936), Fiske (1949), and Goldberg (1976; 1981) among others, whereas the second one is owed to the questionnaire approach of McCrae and Costa (1985a; 1985b; 1985c).

According to the Five Factor Model (FFM), the five dimensions through which an individual's personality is explained are: Neuroticism versus Emotional Stability; Extraversion or Surgency; Openness to Experience or Intellect, Imagination, or Culture; Agreeableness versus Antagonism; and

Conscientiousness or Will to achieve (McCrae & Costa, 1997, p. 509). Work carried out among different cultures showed that the personality dimensions presented in the model are universally found (McCrae & Costa, 1997; Salgado, 1997), and that they show stability over time (Costa & McCrae, 1992). On the basis of these elements, the most common position of theorists is that the best representation of personality traits is the one provided by the Five-Factor Model (FFM) (Digman, 1990; McCrae & Costa, 1997).

However, the universality of the five dimensions suggested by the Five-Factor Model has been challenged by studies conducted in other cultures, like the Hungarian, Chinese, and German culture. These studies highlighted the presence of all the personality trait adjectives propounded by the model in the German culture, but not in the Hungarian and Chinese cultures (De Raad & Szirmák, 1994; Yang & Bond, 1990).

However, this problem has been overcome in English cultures thanks to a substantial number of experiments run over the years, which ensure that the model represents a reliable instrument for the study of personality traits (McCrae & Costa, 1997). Under Costa and McCrae's (1992) view the four different elements in support of the model are a) the fact that the five dimensions are expressed through human behavioural patterns; b) that they are found in the language; c) that they are observed through the lifespan and in different cultures; c) and that transmission of the traits suggests that they may have a biological basis.

As argued by some authors, a fundamental factor to be considered is that personality traits are expressed through language and thus there should be a specific term for all of them (Goldberg, 1981). This principle is satisfied in the

English language where all traits from the five dimensions of the model are defined through the appropriate terms, thus ensuring suitability of the model for English speakers (McCrae & Costa, 1997).

In view of the empirical evidence in favour of the Five-Factor Model, the five personality dimensions described in the model have been utilised for Study 4, which was carried out on a sample composed of English and international undergraduate students from City University, London. In the study, a set of four personality traits representing each of the five dimensions from the Five-Factor Model had to be rated in the presence or absence of facial stimuli, and for both the behavioural and neutral story about a target person.

Study 4 investigated two aspects: a) the role of both visual and verbal (written) information in social categorisation and the effect of such information at increasing the extremeness of the ratings about a target individual's personality traits, and b) the effect of visual and verbal information on participants' confidence at rating the personality traits. Therefore, I manipulated two variables (presence or absence of facial stimuli, and behavioural story), and used the neutral story as a control variable. In condition 1 both the neutral and behavioural story were presented with the photographs (showing respectively the face of a young woman for story 1, and the face of a young man for story 2 -- the two photos are included in the Appendix section of the chapter), whereas in condition 2 the stories were presented without photographs.

The neutral story was about a young woman, and controlled for presenting a photo in a neutral story context, where it should have no effect. The second scenario was a behavioural story about a young man, and some negative ratings were predicted to appear on the traits. Here the photo absence/presence

was assumed to have a bigger impact and to lead to more extreme and more confident ratings. If people consider categories as an essence, they then consider category membership all-or-none since you either possess a quality or you do not. Kalish argued that people tend to see biological kinds as all-or-none categories (Kalish, 1995). According to the literature, graded responses testify a lack of certainty in the perceiver (Estes, 2004). Thus, the criterion behind the adoption of confidence and extremeness measures in Study 4 lays in the fact that endpoint responses indicate categorical views (Estes, 2003). The confidence measure was adopted by Estes in two studies from 2004, in which confidence judgments were used to measure certainty in the categorisation of artefacts and natural categories. The results showed that although confidence ratings did not anticipate within-domain gradedness, they did predict between-domain gradedness.

Previous studies show that beliefs and social perceptions of facial stimuli are tightly linked, and in particular category labels and lay beliefs about human traits favour recall and recognition of faces (Eberhardt et al., 2003). Some authors argue that facial stimuli play a central role in social perception and person construal (Cloutier et al., 2006; Quinn & Macrae, 2005), and that perceivers gather information from facial stimuli even if that information is not directly relevant for the task, and that the purpose of this is purely semantic (Macrae et al., 2005). Zebrowitz insists (1997) that faces are the predominant stimulus in social perception. Similarly, behaviours play an important role in social categorisation. Psychology research has shown that in the perceiver's eyes, someone's behaviour is seen as the results of her/his own unique

personality make-up rather than the result of contingency factors. This tendency has been named as the *correspondence bias* by Gilbert and Malone (1995).

Findings in the literature support the key role that facial stimuli and behaviours play in social construal. This chapter introduces a study that aimed to link psychological essentialism to social construal by exploring the effect of faces and behavioural information. The expectation was that some differences would be observed between the ratings of the neutral and behavioural story, and that more extreme ratings would be shown in the behavioural story. Likewise, the effect of the facial stimulus for the behavioural story was expected to further increase extremeness as would favour the perception of a more "real" person in the perceiver's eye. As previously discussed, the effect was expected to produce lower confidence ratings.

A two-way interaction was predicted, as no effect of the presence/absence of the facial stimulus was expected for the neutral story. The study is presented in the next section.

6.4. Study 4

6.4.1. Methods

6.4.2. Participants

The initial sample consisted of 109 participants of whom one did not complete the entire questionnaire, thus a total of 108 participants were retained for the study (condition 1 C1, with photos N = 57; condition 2 C2, without photos N = 51). The study was run during a research methods lecture for undergraduate students at City University, London, as part of a broader

investigation on essentialist beliefs that included Study 3 also. The students received one course credit.

6.4.3. Materials

The study was presented on the first four pages of a booklet including also Study 3. The questionnaire included two short stories: story 1 (neutral story) (see Table 6.3 in the Appendix section) gave some description of the hobbies, work, and likes of a young woman, and story 2 (behavioural story) (see Table 6.4 in the Appendix section) described an event that involved a young man, providing some information about his behavioural response to a work issue caused by a colleague. The stories were presented with or without a photograph showing the neutral face of the two target individuals associated with the stories of either male or female gender.

Each story was followed by a scale composed of twenty personality traits tapping the five dimensions of personality as indicated by the Five-Factor Model (see Table 6.7 in the Appendix section), and the traits were rated on a seven-point Likert Scale (see Table 6.5 and 6.6 in the Appendix section). In addition to rating the personality traits of the target person, the participants had to indicate their confidence at scoring the traits for each of the twenty items (1 = very confident; 7 = not very confident) (see Table 6.5 and 6.6 in the Appendix section). The instructions for completing the questionnaire were provided on top of the sheet, and were as below:

"Please read carefully the two stories presented below. Underneath the stories you will see a table with two columns. In the left column of the table you will be asked to rate some psychological traits of the person in the story on a seven-point scale. In the right column of the table you will be asked to indicate

how confident you are at rating each of the personality traits for the person in the story".

6.4.4. Results

The analysis measured extremeness in judgements ratings and confidence in judgements ratings. Extreme responses and high confidence were considered as indicators of a strong opinion at making judgement. In this section the results about Extremeness are discussed first and the results about Confidence are discussed afterwards. The scales all had 1 as a high value, and 7 as a low value. A general trend for the behavioural scenario to produce more extreme scores than the neutral scenario is observed with both lower and higher values on different traits.

6.5. PCA analysis of the ratings of the characters in the stories in Study 4

Study 4 wanted to explore perceptions of personality and how knowledge on some personality traits is likely to extend to other personality traits that are not known to a perceiver. Thus, the study looked at ratings of perceptions of personality, rather than personality per se. As previously mentioned, the twenty personality traits utilised in the study were borrowed from the Big Five Theory, and I thought that it would be interesting to explore whether the factor structure of the scales matched that of the Big 5 theory from which they were taken. The ratings of each story on the 20 scales were analysed separately with Principal Components Analysis (PCA) using the data from all 108 participants.

Story 1 showed a structure with a strong first factor, and 5 other factors with Eigenvalue greater than 1 (see Scree Plot in Figure 6.1). Rotated factor

loadings suggested that the first factor was a combination of Extraversion and Openness (7 of the 8 scales from these two dimensions loaded on the first factor), but the other factors did not correspond to particular dimensions. Confirmatory PCA was run on the 5 dimensions, each including 4 scales. The analysis found that Extraversion and Openness had good structure (all four scales positively loading on the first factor which captured 48% and 45% of the variance respectively), but the other three dimensions did not.

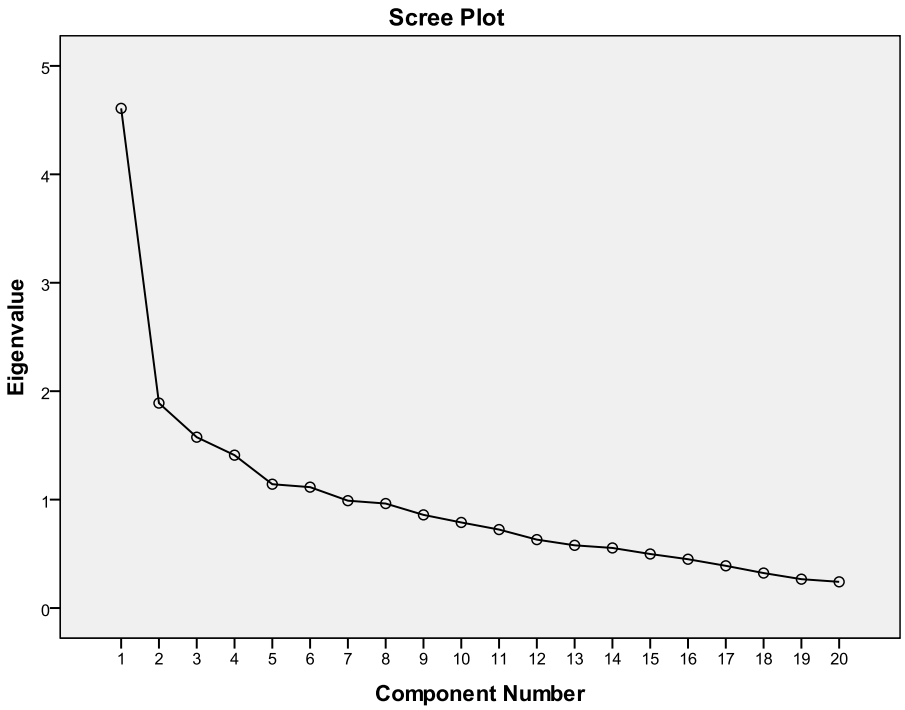

Figure. 6.1. Scree Plot for Story 1 showing five factors with eigenvalues greater than 1

Similar analyses were conducted on Story 2 (see Scree Plot in Figure 6.2). Story 2 described a behavioural scenario therefore contained some evidence of the protagonist's personality in a real-life situation rather than a neutral description of the protagonist's personality traits (the story included a negative

social behaviour). The resulting picture had more structure than the one in Story 1, with the Scree Plot showing three components above the “elbow”.

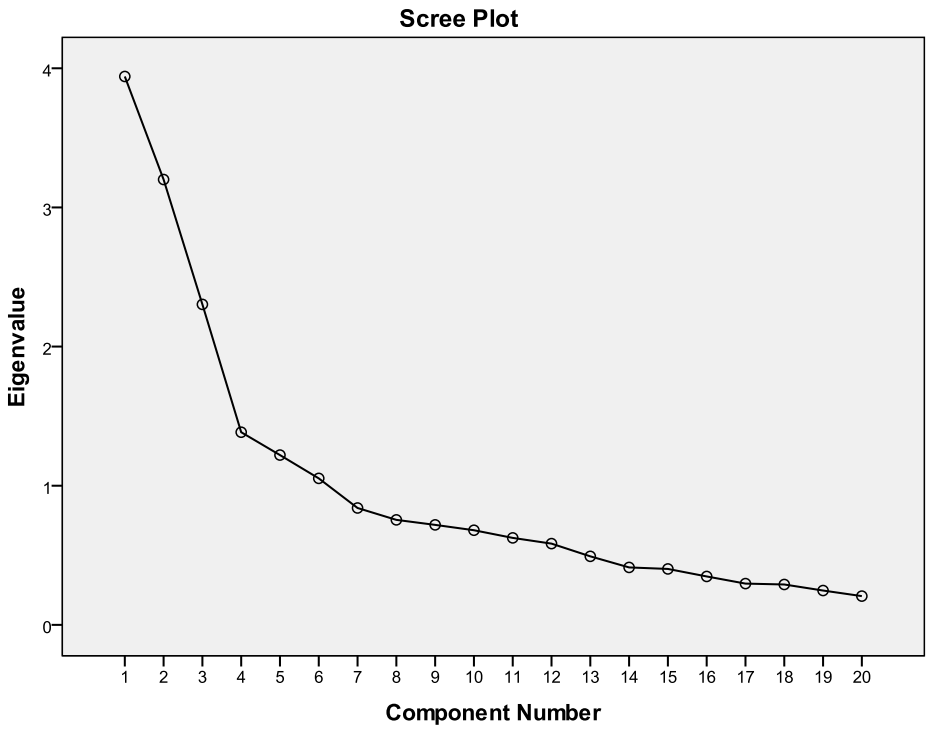

Figure 6.2. Scree Plot for Story 2, showing three factors with Eigenvalue bigger than 1

For the three factor rotated solution suggested by the Scree Plot, once again the first component was primarily a combination of Extraversion and Openness, with positive loadings for 3 out of 4 scales on each dimension. The second component had 3 out of 4 of the Conscientiousness scales, and the third component had 3 out of the 4 Agreeableness scales. However, a solution with 5 components (to match the theoretical structure) did not reveal the expected five factor structure. Finally, confirmatory PCA on each subscale showed a similar pattern to that for Story 1. Extraversion and Openness had strong first factors with 47% and 46% of the variance, while the other 3 dimensions showed weak structure.

In conclusion, there was some evidence that the meaning of the scales for the participants as they judged the characters in the stories corresponded to the theoretical five factors, but only in respect of the Extraversion and Openness scales, which themselves were inter-correlated within the data. My expectation was for a clear structure to emerge if there was consistent variance between participants in how they viewed the personality of the protagonist in each story. Failure to confirm the five personality factors is likely to be due to low variance between participants in what was a relatively simple task.

6.6. ANOVA of five dimensions mean ratings in Study 4

In order to examine the structure underlying the 20 scales, the scales were used to generate mean ratings for each of the Big Five personality dimensions that they represented. A first step into the analysis was to align the reverse coded scales in order to have them all in a positive direction. Then, a three-way ANOVA was run on the mean scale ratings for the five personality dimensions across stories and conditions. For the ANOVA factors of dimension (5 dimensions) and story (2 stories) were within-subjects, whereas condition (photo versus no-photo) was between-subjects.

No main effect of condition ($F<1$) was observed, but there was a significant three-way interaction of Story, Scale and Condition ($F(4, 424) = 4.157$, $p < .005$ when a Greenhouse-Geisser correction factor epsilon of .826 was applied to the degrees of freedom). The main effect of Scale ($F(4, 424) = 82.4$, $p < .001$) and the interaction of Scale and Story ($F(4,424) = 48.0$, $p < .001$) were also significant.

The interaction of Scale and Story is seen in Figure 6.3. The effect of the event described in Story 2 was to reduce Conscientiousness and Neuroticism,

and (perhaps surprisingly) to increase Agreeableness (all significant at .001 on a related t-test, Bonferroni corrected alpha = .01).

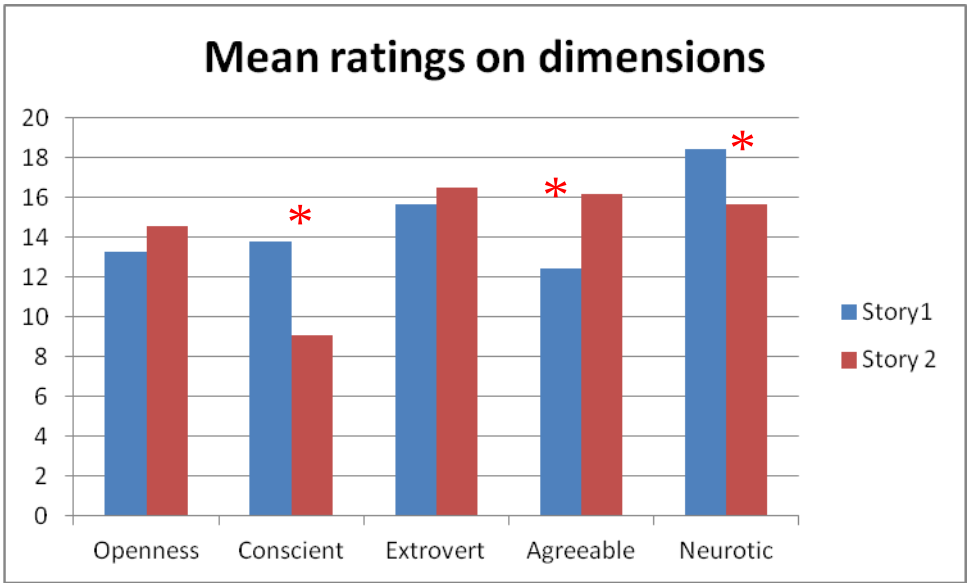

Figure 6.3. Mean ratings on the Five Factors

In order to explore the significant three-way interaction, individual 2-way ANOVAs were run on the five dimensions separately, with Story and Condition as factors. The only dimension showing a significant two-way interaction was Extroversion ($F(1,106) = 9.3$, $p < .005$). Without a photo, mean extraversion was 14.7 for the first story and significantly increased to 17.3 for the second ($t(50) = 3.95$, $p < .001$). Given the photo, these means were reversed with 16.5 for the first story dropping to 15.8 for the second, a drop that was not significant ($t(57) < 1$).

As discussed above, only one out of five dimensions was significant. This result is incidental to the main aim of the study which was to see whether providing a photo led to more extreme and more confident ratings of personality.

However, it partly supports the hypothesis that facial stimuli may increase confidence and extremeness, and it is interesting to see that although partial, the photo did have some significant effect. Presumably the faces of the two individuals pictured provided additional cues to this particular personality dimension which were sufficient to over-ride the impression of increased extroversion provided by the behavioural story condition when there was no photo shown.

6.7. ANOVA of extremeness of responses

The extremeness of responses was defined in terms of absolute distance from the midpoint of the rating scale (in a seven-point Likert Scale the midpoint is 4). As an additional dependent measure, the analysis was repeated on the number of extreme rating responses given (1 or 7). Factors were Photo Condition and Story. The results of extremeness of responses and use of endpoint ratings were the same, with the same pattern of means showing an increase in use of endpoint responses from 2.33 (0.25) for Story 1 to 3.75 (0.34) for Story 2. There was a significant main effect of Story ($F(1,106) = 27.6$, $p < .001$) and no other significant effects.

In both analyses the same result was observed, highlighting an increase in extreme responding with Story 2, but no effect of photographs.

Also, the correlations between extremeness and confidence ratings were investigated. As shown in Figure 6.4, the constructs correlated at -.5, and are therefore not independent. The first and second story showed very similar correlation of extremeness and confidence. Note that a negative relation between extremeness and confidence is consistent with Estes (2004) data, where all-or-none categorization was accompanied by reduced confidence.

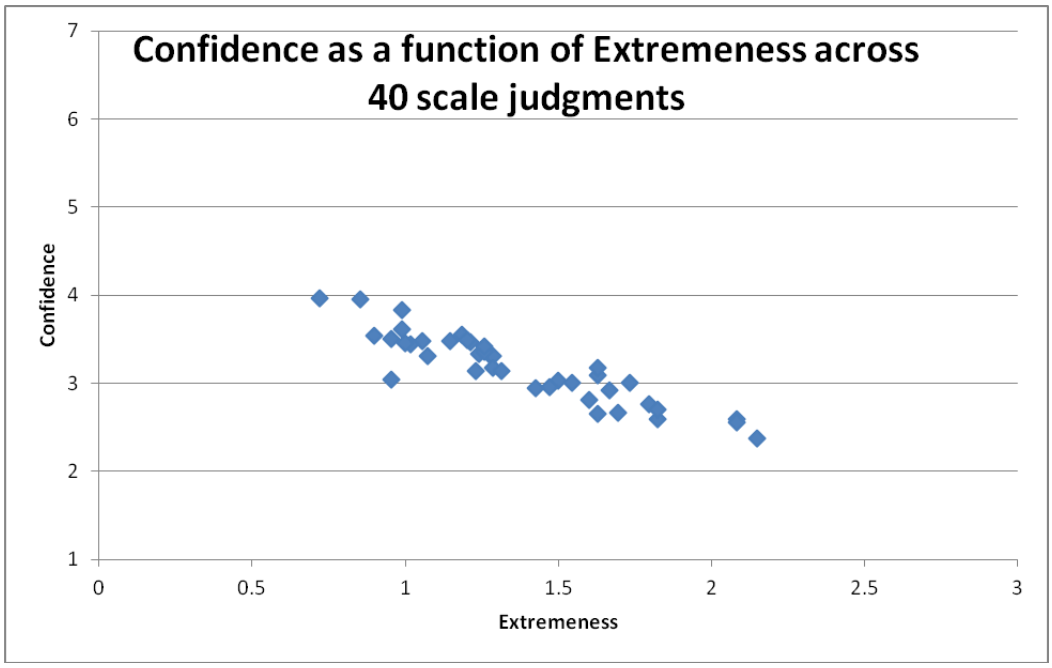

Figure 6.4. Confidence as function of Extremeness across Forty scales judgments

Since Study 3 and 4 were run on the same participants, an interesting point of investigation would be to see whether individual essentialism scores in Study 3 predict judgments in Study 4.

I calculated an overall essentialism score for each participant. I treated these scores as different scores for the two groups who had different versions of the questionnaire, and I then correlated that with the overall average extremeness scores for each story. None of the four correlations were significant. The correlations were in the range of -.09 and -.16. The conclusion is that no evidence of systematic individual differences linking the two studies was observed.

6.8. Discussion

Study 4 aimed at investigating some of the factors that are considered influential in social categorisation. In particular, the two aspects that have been explored in the study were the role of facial stimuli through the presentation of photographs of neutral faces, and of verbal information through the presentation of behavioural and neutral stories. Recent research revealed the importance of facial stimuli in the categorisation of social partners (e.g., Bruce & Young, 1998), and suggests that individuals collect all the relevant details concerning age, gender, social status, and emotional state for semantic purposes (Townsend et al., 2000). Moreover, the judgements we make on the basis of an individual's appearance guide us in decision making, for instance decision about the type of behaviour we are going to adopt with that person (Townsend et al., 2000).

In line with this strand of research, the expectation for the present study was that the presence of a facial stimulus would generate more extreme ratings in the categorisation of personality traits for the behavioural story, but would not enhance the confidence of the participants. Likewise, similar expectations about an increase in the extremeness of the ratings were held for the behavioural story.

In accordance with the expectations, the results showed that the behavioural stories produced more extreme ratings than the neutral story. However, contrary to Estes (2004) participants' confidence was also enhanced in this condition. On the other hand, the presence of facial stimuli had very little effect on either the extremeness of the participants' ratings or their confidence. Overall, the data analysis showed that the behavioural responses of individuals favour impression making more than neutral information about personality traits,

and that neutral facial stimuli do not significantly enhance participants' confidence or the extremeness of the judgements.

This result provides little support to previous empirical evidence about the influence of facial stimuli in the process of impression making and categorisation. Nevertheless, it brings some contributions in relation to the finding that impression making is greatly influenced by behavioural information and that the sight of a neutral facial stimulus does not add much to it. Likewise, behavioural information becomes more relevant than neutral information about the attitudes, likes, and personality traits of a target individual. This study leaves some open questions and loose ends in the understanding of categorisation processes. For instance, the gender factor was not taken into account, and the fact that a female target person was associated to the neutral scenario while a male target person was associated to the behavioural scenario may have favoured some gender bias.

Also, a possible limitation in the results would be the decision not to counterbalance the order of the stories. However, I did not expect order of presentation to have an effect. This represents a first investigation into the effect of faces and behavioural information on personality perception. In the case that an effect had been observed, order of presentation and gender would have required to be disentangled. Further research could be carried out in order to overcome limitations of the results. For example, a range of photos matching the different scenarios could be introduced. Another aspect to be considered would be the order of presentation of the stories and different versions of the questionnaire could be produced in order to reverse the order of presentation of

the stories. By introducing these changes, the likelihood for the results to generalise would increase.

Future work could try to overcome this limit by creating two conditions in which the presentation of the two variables is inverted. Also, the neutral faces used in the study did not provide much information about the emotional state of the target person. The presentation of a face showing an emotional state could possibly produce more extreme response although this aspect would go beyond the purpose of this study, whose intention was in fact to draw a more real picture of a target person through the presentation of his/her face.

Also, no direct evaluation of the hypothesised similarities between person construal and essentialist beliefs has been carried out. My opinion is that more research needs to be undertaken before the link between social construal and psychological essentialism is more clearly understood, and their mutual influence is evaluated.

6.9. Appendix

Story 1

Mary shares her house with two cats and a dog and during her free time she does some gardening. Mary is 30 and she works as a cook in a restaurant. At work, she supervises some trainees in her specialties, which are the starters and Italian food in general. Mary has a big passion for motorbikes and she has owned one since she was twenty.	

Table 6.1. Story 1, neutral scenario with photograph, condition 1

Story 2

Michael is on a coffee break when he meets a colleague of his and they start having a chat. After a little while his colleague admits that he has not submitted his paperwork from the previous week yet. Michael is very annoyed to learn that since this delay could affect the evaluation of his work and he shouts at him. When they leave the café they walk apart from each other and go back to their duties. In the afternoon Michael works till late in order to finish his colleague's paperwork.	

Table 6.2. Story 2, behavioural scenario with photograph, condition

Scale of personality traits and participant's confidence -- Part 1

Please rate Michael's personality by placing a check mark on the appropriate number from 1 to 7 for each of the personality scales listed below	Please indicate how confident you are in judging Michael's personality traits as listed on the left by placing a check mark on the appropriate number from 1 to 7
Michael is Shy Friendly 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Trustworthy Unreliable 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Despotic Compliant 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Entertaining Boring 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Altruistic Selfish 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Open-minded Close-minded 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Persistent Flagging 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Optimistic Pessimistic 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Realistic Naïve 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Self-confident Unsecure 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7

Table 6.3. Scale of personality traits and participant's confidence, story 2. The scale for story 1 had the same wording with the exception of the name, which was Mary instead of Michael

Scale of personality traits and participant's confidence -- Part 2

Please rate Michael's personality by placing a check mark on the appropriate number from 1 to 7 for each of the personality scales listed below	Please indicate how confident you are in judging Michael's personality traits as listed on the left by placing a check mark on the appropriate number from 1 to 7
Michael is Sympathetic Unsympathetic 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Adventurous Conventional 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Creative Uncreative 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael has High goals Low goals 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Innovative Conservative 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Patient Impatient 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Punctual Late 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Tough Soft 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Imaginative Unimaginative 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7
Michael is Ambitious Fulfilled 1---2---3---4---5---6---7	I am Very confident Not very confident 1---2---3---4---5---6---7

Table 6.4. Scale of personality traits and participant's confidence, story 2. The scale for story 1 had the same wording with the exception of the name, which was Mary instead of Michael

List of personality traits as in the questionnaire

NEUROTICISM
Despotic/Compliant
Patient/Impatient
Self-confident/Unsecure
Optimistic/Pessimistic
AGREEABLENESS
Trustworthy/Unreliable
Altruistic/Selfish
Tough/Soft
Sympathetic/Unsympathetic
CONSCIENTIOUSNESS
Persistent/Flagging
Punctual/Late
Ambitious/Fulfilled
High goals/Low goals
OPENNESS
Creative/Uncreative
Open-minded/Close-minded
Imaginative/Unimaginative
Realistic/Naïve
EXTRAVERSION
Shy/Friendly
Entertaining/Boring
Innovative/Conservative
Adventurous/Conventional

Table 6.5. List of personality traits according to the Five-Factor Model (John & Srivastava, 1999)

Chapter 7: Conclusion

The psychological debate about essentialism has deepened in the past fifteen years favouring a wealth of investigations and new knowledge in the field. Among other features, the debate has ranged from the contexts in which essentialism is observed (e.g., Gelman, 2003; Medin, 1989), to the reasons why it occurs (e.g., Gelman, 2003), and to the elements of which it is composed (Demoulin, Leyens, & Yzerbyt, 2006; Haslam et al., 2000; 2002). My doctoral thesis has focused on a number of aspects related to essentialism and essentialist beliefs, and aims to answer some questions for which little explanation was provided by previous work.

First, my doctoral research investigated a number of factors that may influence essentialist beliefs, like cultural contexts and personal category membership. According to the literature there are some elements -- like people's perception of the world and their behaviour -- that are shaped by the social groups individuals belong to (Yzerbyt & Demoulin, 2010). This concept is double-faceted and is shared between lay-people -- who think that social groups own deep properties that define their true nature (Demoulin et al. 2006) -- and researchers -- who highlight the fundamental role of group membership for survival (Castano & Dechesne, 2005), cognitive (Caporael, 2005; Dunbar & Shultz, 2007), emotional (Correll & Park, 2005), and identification needs (Yzerbyt & Demoulin, 2010).

Second, a further purpose of this work was to build an economical measurement of essentialist beliefs that could be employed in the study of social categories and personality traits. Among the several measurements of essentialism, the questionnaire by Haslam et al. (2000) measuring essentialist beliefs about social categories obtained important results at revealing the

mechanisms implied in psychological essentialism. These results provided the theoretical and empirical background upon which the first two investigations of this thesis built, and a solid ground for Study 3. In particular, evidence was produced about the two dimensions of Natural Kind and Entitativity, later supported by Study 1 and 2 of this thesis. This finding led to the design of an essentialist beliefs scale that utilised four measures of essentialism only, with two sets of measures representing either Natural Kind or Entitativity.

Third, my doctoral work explored whether individual differences occur in the way social categories are essentialised, and whether it would be meaningful to talk about personal styles of essentialism. The theoretical framework within which this hypothesis was elaborated was the empirical evidence provided by former work about individual differences in the way people solve problems and interact with social partners (see Klein & Schlesinger, 1951). Some complementary work carried out in the field of autism revealed that normally developing subjects differ from individuals suffering from the autism spectrum disorder in both their cognitive and social style (Happé, 1999; Happé & Frith, 2006). Hence, the second investigation of Study 3 tested a sample of subjects affected by Autism Spectrum Disorder with the expectation that they would show more extreme essentialist beliefs either on one or the other side.

Finally, this doctoral work explored some variables that could influence the process of social categorisation, such as a facial stimulus and verbal information about a target person. The hypothesis was that visual and behavioural information would increase extremeness of the judgements and confidence ratings. Also, a link between the mechanisms involved in person construal and psychological essentialism was hypothesised. In reviewing the

literature, little data was found on the association between social categorisation and essentialist beliefs, and Study 4 aimed to fill this gap.

The next part of this chapter will discuss the findings of each study in the same order followed in the thesis, from Study 1 to Study 4, and will link the findings of the studies for a broader discussion where relevant.

7.1 Essentialist beliefs about social categories: an investigation into the effect of social context and category membership

Study 1 set out to investigate essentialist beliefs about social categories in a multicultural sample of subjects. The study was a replication of a former study run by Haslam et al. (2000) that provided evidence for the occurrence of the two dimensions of Entitativity and Natural Kind as fundamental components of essentialist beliefs, and which individuated nine measures of psychological essentialism. Evidence for the interplay of Entitativity and Natural Kind in the structure of essentialist beliefs was provided, and the way individual categories are essentialised was revealed.

According to Haslam et al. (2000), Natural Kind was composed of the five measures of Discreteness, Necessity, Immutability, Stability, and Naturalness, and Entitativity was composed of the four measures of Uniformity, Informativeness, Inherence, and Exclusivity. The analysis of the single items showed that among the categories associated to Entitativity are political groups (Liberal, and Republican), Diseases (Aids patients), Sexual Orientation (Homosexuals), and Religious Beliefs (Catholic), whereas the groups especially associated to Natural Kind are Gender (Female, and Male), Ethnicity (Asian), Physical Appearance (Tall, and Short), and Race (Black, and White).

Also, some within-domain discrepancies were observed for a few domains such as -- for instance -- Sexual Orientation, which had the category Heterosexual loading under Natural Kind and the category Homosexual loading under Entitativity. The same result was observed for Race, with Black people scoring higher on Entitativity than White people. Beside the two aspects above, Haslam et al. (2000) explored the perceived status of the forty social categories and observed that the attribution of high levels of Entitativity was correlated to a low category status, whereas the attribution of high levels of Natural-Kind-ness correlated to high category status. Thus, this aspect was interpreted as an indication that these categories are particularly prone to mechanisms such as stereotypes and prejudice.

Haslam et al.'s (2000) study represented a breakthrough investigation in the field of essentialism, and favoured the beginning of a rich area of research. However, the study's empirical design bore some weak points that may have affected the strength of the findings: the two main problems were the small sample size (N = 40) and the cultural set-up in which the study was run, described by the authors as traditional and conservative. These two aspects determined a reduced opportunity to generalise the findings to the whole population and to other cultures. Thus, Study 1 aimed to replicate the former study in a multicultural environment, and to test a broader number of subjects in order to provide further strength to previous results. Also, it aimed to see whether cultural contexts affect essentialist beliefs.

During a pre-test stage a number of social categories representative of the cultural background in which the study was run were generated. The categories retained for the study showed great similarity with the ones tested in the former

study, with the exception that four domains of the former study were not represented in Study 1. The study was run on a wide sample (N = 123) of participants from either an English or an international background who completed the whole set of 36 categories.

Interestingly, the results of Study 1 showed both similarities and differences with the former study. The first aspect that was observed in relation to the structure of essentialist beliefs was that the two-dimension structure was confirmed with strong empirical evidence. Also, the structure of the two dimensions appeared very similar to the one observed in the former study although not identical, with the main difference represented by the fact that Informativeness loaded negatively for Natural Kind rather than positively for Entitativity. Thus, the two dimensions were now respectively composed of Necessity, Discreteness, Immutability, Stability, and Naturalness for the Natural Kind dimension and of Inherence, Exclusivity, and Uniformity for Entitativity, whereas Informativeness loaded apart.

Further analysis exploring the meaning of this result, and which categories scored high or low in Informativeness, was run on the Informativeness factor. In the analysis the Natural Kind scores were plotted against the Informativeness scores, showing that among the less informative categories appeared biological domains such as Race, Height, and Gender, whereas non-biological categories such as Upper-Class, Liberal, and Believer rated particularly high on the measure. This result was interpreted in consideration of a cultural effect that would affect the perception of some social categories in relation to the social context perceivers belong to. Also, the analysis of the category scores for the remaining categories showed some important differences

from the former study, which were observed in particular for Race and Sexual Orientation: while Haslam et al. (2000) observed that Homosexual and Black people were rated under Entitativity and that Heterosexual and White were rated as natural, Study 1 did not find within-domain differences for those categories, which scored high in Natural-Kind-ness instead.

An evaluation of the status of the categories above carried out by Haslam et al. (2000) showed that the entitative categories suffered from the attribution of a lower status. However, since Study 1 did not investigate this aspect, it was not possible to establish whether the status of these categories had improved. Nevertheless, I would suggest that the shift that occurred from one dimension to the other testifies that a different perspective has been adopted by Study 1's participants who associated a number of categories to biological (or natural) traits rather than to entitative ones. In my opinion, these results reflect the cultural background of the participants: the literature supports the hypothesis that traditional and mono-cultural backgrounds may produce less favourable attitudes towards minority groups due to a reduced opportunity to interact with other groups (e.g., Berry, 1984), which was also observed in the former study.

On the other hand, a daily cross-cultural interaction and exposure to different cultures has been indicated as a favourable aspect in the acceptance of other social groups, and in a more positive disposition towards them (Fowers & Davidov, 2006). Additionally, elements such as social inclusion, equal opportunities policies, and anti-discrimination legislation could plausibly influence the way we see certain social groups (Rudiger & Spencer, 2003). This was the direction undertaken by the European Commission (2007) in the annual report on migration and integration, which recognises the importance of

immigration for European countries, and of the reciprocal relationship between the hosts and the migrants at adapting and opening to each other.

Likewise, the importance for the majority group to play an active role that would go beyond tolerance has been supported by recent research (see Phelps et al., 2011). Such national management of minority ethnic groups -- that is being promoted in countries like Britain -- favours members of those groups to feel comfortable and integrated in the community, and minimises conflict between hosts and migrants (Berthoud et al., 1997; Heckmann & Schnapper, 2003). I would like to suggest that the effect of an increased "naturalisation" of some minority groups in the eyes of the participants of Study 1 could reflect the employment of the inclusion policies adopted and promoted in London.

This study has the merit to have highlighted differences in beliefs towards others-categories between two social contexts where minority groups are either devalued as in the case of Homosexuals and Blacks -- see Haslam et al. (2000) -- or "naturalised" in the same way own-categories are -- see Study 1. This perspective is encouraging and supports positions in favour of social inclusion policies as discussed above.

7.2 Essentialist Beliefs about Social Categories: a comparison study in Sardinia

Study 1 provided some insightful material concerning cultural differences in the way individuals essentialise social categories, which represented one of the most striking observations to emerge from the comparison with the former study. In light of this result, the investigation of cultural differences appeared a rich seam to mine. In particular, the large sample of Study 1 provided a wealth of data in support of the findings. As previously argued, the

former study did not benefit from such strong empirical evidence and this made the extent of the differences between the two studies unclear. Certainly, further investigation in traditional settings would have clarified these doubts in more depth.

The chosen set up for Study 2 was the cultural context of Sardinia that offered an ideal setting thanks to its monocultural society and to a strong connection of its population with the ancient traditions and values of the land, and also to a strong identification of its population with the ingroup (Sardinians) rather than with the outgroup (Italians). In particular, the Sardinian context appeared suitable at providing information about how the population see minority groups, which in the study were represented by categories such as Chinese, Homosexuals, and Blacks, and at showing whether the structure of essentialist beliefs would have been more similar to the former study or to Study 1. Although Sardinians tend to identify themselves as Sardinians rather than Italians, the chosen category for the Nationality domain was Italian. This decision was made in order to keep Study 2 similar to Study 1, and also since the category Sardinian was not included, the category Italian would have automatically activated the own-categories domain.

The data analysis strongly confirmed the occurrence of a two-factor explanation, and a composition of the two factors that was identical to Haslam et al. (2000): Natural Kind included Naturalness, Immutability, Stability, Necessity, and Discreteness, whereas Entitativity included Uniformity, Exclusivity, Inherence, and Informativeness. Nonetheless, while the structure of the two dimensions was similar to the former study, the way single categories were rated resembled more to Study 1. For instance, domains such as Race and

Sexual Orientation did not show within-domain differences and obtained high scores for the Natural Kind factor, and also minority groups such as Chinese were rated high in naturalness.

This result was very meaningful at revealing cultural influences in essentialist beliefs, although difficult to interpret. In fact, unexpectedly the single category scores were more similar between the traditional and multicultural samples of Study 1 and 2, than between the two traditional samples of Haslam et al. (2000) and Study 2. This result could involve a number of different aspects: on the one hand I believe that the fact that the former study was run a decade before its replication has to be taken into consideration: the present era propounds matters such as racial integration, acceptance of sexual diversity, and a vision of life-threatening diseases in a different fashion than ten years ago, and fast changes have happened even in traditional societies. Furthermore, as previously discussed, the small sample size of Haslam et al.' s (2000) study may have influenced the results and a broader sample would have certainly provided a more reliable yardstick.

Also, both Study 1 and 2 were run in a European context: despite previous work highlighting similarities in the cognitive style adopted by individuals from Anglophone cultures and differences between Anglophone and Mediterranean cultures (Hampden-Turner & Trompenaars, 1993), there may be a common ground and values that guide the perception of social groups and that is shared among the European cultures. As argued by Risse (2003), although Europe still lacks Entitativity due to its fuzzy boundaries, from the advent of the Euro the status of the European continent clearly emerged as a collectivity of political, social, and cultural identities that unify European citizens. Thus, this

common ground may result in similarities in certain beliefs and attitudes shared among Europeans.

Beside the investigation of the structure of essentialist beliefs about social categories, Study 1 and 2 explored the influence of personal category membership in essentialist beliefs about own-categories (categories an individual belongs to) and others-categories (categories an individual does not belong to). The literature shows that higher responsiveness towards own categories is automatic (Bastian, Loughnan, & Koval, 2011) and that individuals tend to attribute to themselves the essences of the categories they belong to (Leyens et al., 2000), which suggests that own categories benefit from the activation of prompter and more positive attitudes towards them.

In consideration of these positions, my hypothesis was that own-categories would have been rated higher in essentialism than others-categories. The data analysis showed that, although the effects were small for most of the scales, the findings provided support for the hypothesis and own categories were more essentialised than other categories with high consistency across all categories. In particular, this aspect was observed for the Natural Kind factor in both Study 1 and 2 (with the exception of Stability and Necessity for Study 2), but not for the Entitativity factor, where no scales were significant in either of the studies indicating that own-categories are not attributed an increased Entitativity.

This result indicates that the categories people identify with are seen as more natural, immutable over time, and discrete, whereas the same categories are not attributed those characteristics by people who do not identify with those categories. The process of naturalisation of own-categories has been discussed in

Chapter 3 in relation to the positions of some researchers (see Haslam et al., 2000) that linked naturalisation to the attribution of a higher status. This point suggests that membership to some social groups may lead to a vision of them as natural and thus be defined by Discreteness, Immutability, and Naturalness rather than by entitative features. On the other hand, categories that are not seen as biological (e.g., Upper-Class) are described through entitative elements such as Inherence, Exclusivity, Uniformity, and Informativeness. It is interesting to note the emergence of a link between Study 1 and 2 in the treatment of own categories and minority groups, which were both naturalised. The reasons behind this mechanism are not clear and I would indicate this aspect as an interesting question for future research.

Analysis of this aspect recalls the concept of Entitativity as formulated by Campbell (1958): "Entitativity is the degree of having the nature of a real entity, of having real existence" (p. 17). Moreover, Entitativity reflects the perception of an entity whose homogeneity and cohesiveness trigger a process similar to the one that develops when a person faces another individual (Hamilton, Sherman, & Castelli, 2002). A likely reflection upon these positions is that groups that own these characteristics are seen as more distant from the ingroup. This perception of distance may explain why social groups that are seen as biological categories are likened to own categories. In fact, for biological categories the perception is not of cohesiveness and exclusivity but of closer resemblance to the categories an individual knows well, like own-categories. On the contrary, groups that are neither associated to biological kinds (Social Class, Political and Religious Groupss) nor express membership are seen as more distant and inherent.

On the other hand, it is meaningful to recall the position of Yzerbyt et al. (1997) about the attribution of essences to social categories as a fundamental error for which they are likened to natural kinds. This mechanism is not observed in groups whose principle features are instead similarity (e.g., homogeneity) and organisation (e.g., common goals), and which are linked to Entitativity. The positions above are consistent with Haslam et al. (2000) and with the account advanced by Rothbart and Taylor (1992) of high levels of inductive potential and inalterability as the core features of Natural Kind entities (among which they mentioned Race and Physical Appearance) and low levels of these features as an indicator of Entitativity (among which are Political Groups).

The approach for the investigation of essentialist beliefs adopted in the first two studies deepened understanding of aspects that had already been evaluated by former research, but that required further investigation. In particular, group membership was previously explored by Demoulin, Leyens, and Yzerbyt (2006) as part of their work on forced social categories (FSC) and chosen social categories (CSC), although without significant results. One of the most noteworthy contributions to consider in the results of Study 1 and 2 is the provision of evidence about a tendency to naturalise one's own categories with high consistency for all categories. Likewise, it was observed that minority groups received a similar treatment. Clearly this finding indicates that the naturalisation of certain categories represents an influential factor in the understanding of essentialism towards some kinds of categories.

It is interesting to note that in Study 2 emerged a tendency to treat the ethnicity outgroup (Chinese) as more "natural" than the ingroup (Italian), which was interpreted in the light of some previous theoretical positions (e.g.,

Demoulin, Leyens, & Yzerbyt, 2006) suggesting that both Entitativity and Natural-Kind-ness contribute to high levels of essentialism. A similar mechanism in relation to the naturalisation of own-categories was observed in investigation 2 of Study 1 and 2.

However, the analysis of the demographics revealed some important details that require attention: in Study 2 the number of Italian participants was 84 out of 87 (the remaining three people indicated themselves as Sardinians) of which 28 people identified as such, and in Study 1 the number of participants from either a British or an English background was 81 people of which 22 people identify themselves as such. However, while in Study 2 the percentage of Chinese participants was equal to zero, in Study 1 among the 34 Asian participants 27 self-identified as such. Thus, the percentage of Asian identifiers considerably overcame the percentage of British identifiers. This aspect offers some ground for discussion, and may suggest that being Asian for Asian identifiers represents an important factor in the perception of the self and may reveal the necessity to maintain this identity along with the newly adopted identity of English citizen and English native speaker.

Nevertheless, the investigation about own-categories revealed an opposite tendency from the attribution of higher naturalness to the ethnicity outgroup, which determined own categories to be "naturalised" more. Thus, if on the one side the ethnicity outgroup rated higher in Natural-Kind-ness and the ingroup rated higher in Entitativity, the opposite tendency was shown in the investigation about own-categories. However, the fact that Sardinian people identify themselves as Sardinians (ingroup) rather than Italians (outgroup) may influence the way the category Italian was essentialised: the attribution of higher

levels of Entitativity to this group could reflect the fact that membership in this category is not entirely perceived as own-category. In fact, although Sardinians are and feel Italian, membership to the "Sardinian" group is strongly felt and overcomes the category "Italian". This point is to be considered as a weakness in the overall findings, which future research should seek to explore in more depth.

A further contribution brought by the present research is the result about the influence of cultural factors. Although this aspect had attracted previous attention (e.g., Lockhart et al., 2009, in the field of Psychological Essentialism; and Miller, 1984, in the field of Social Psychology), I think that further exploration of this issue would uncover interesting material. Miller regarded cultural influences as an independent variable to be considered independently from subjective and objective factors (Miller, 1984; p. 961). My suggestion is that these components (subjective factors, objective experiences, and cultural elements) all converge in the essentialism process and guide dispositions and beliefs towards the target categories.

7.3 Individual styles of essentialism

The analysis of the data of Study 1 revealed the occurrence of individual styles at essentialising social categories, and suggested the opportunity to measure individual essentialism through a specific scale. The support of Haslam et al.' s (2000) findings brought by Study 1 suggested that some random measures of Natural Kind and Entitativity could be reliably used in the design of the new scale, for which two pairs of measures taken from the former questionnaire were used. Despite the reassuring results about personal styles in essentialist beliefs, the questionnaire failed to validate an underlying construct for half of the domains tested (personality traits and intelligence), only providing

evidence for the presence of an underlying construct for the analysis by scales. In fact, good reliability was shown by most scales in the analysis by scale and by the social class scale in the analysis by domain. Thus, although some significance was provided, the results should be interpreted carefully.

A number of limitations to Study 3 should be mentioned. One of these limitations concerns the design of the study, and the questionnaire items in particular. Given the poor significance shown by some of them, it would be good to make the items go through further testing in order to increase their reliability for a better measurement of essentialist beliefs. The weakness of the items -- although not observed during the pre-test stage -- was highlighted by a deep analysis of reliability in the analysis by scale. There, similar values of Cronbach α were observed with items selected at random. Likewise, the investigation with the Autism Spectrum Disorder sample revealed a weak effect in relation to an increased extremeness of essentialism, showing little difference with the sample of normally developing subjects. Unexpectedly, the results of Study 3 failed to support the hypotheses for both investigations. I suggest that an improved design of the questionnaire and of its items could improve its overall reliability and be the focus for future work.

7.4 Categorisation of personality traits: an investigation into the role of verbal and visual information

The purpose of Study 4 was to explore the role of some of the mechanisms that come into play in social categorisation and that lead to essentialist beliefs about an individual's personality traits. The mechanisms considered by the investigation were neutral facial stimuli and information about a target individual, either behavioural or neutral. The weight of both verbal and

visual information has been widely discussed and recognised by researchers (see Macrae & Bodenhausen; 2000; Macrae et al., 2005; Tarr & Gauthier, 2000; Townsend et al., 2000), and Study 4 looked at which of these variables play a stronger effect. The analysis considered both the extremeness of the scores and the ratings of self-confidence since they would be indicators of strong judgments, and revealed that the factor that has a stronger effect in social categorisation is behavioural information. As predicted, behavioural information produced stronger ratings than visual information of neutral stimuli, which showed little effect.

7.1. Gender differences in essentialist beliefs

An interesting question relates to the possibility of age and gender differences in essentialism. I looked at gender differences in the degree of essentialising based on average ratings across categories in Study 1, and there were neither significant differences on any of the nine scales, nor on factor scores derived from the PCA. In all cases $t(121) < 1$. Overall, this thesis was not designed to look for such differences. Study 1 and 2 had a gender imbalance, with roughly 2/3 of participants who were females in both studies. Also, the sample size was not large enough to allow separate analysis of correlations for males and females within the sample. Gender and age were not recorded for Study 3 and Study 4. Similarly, given the distribution of ages in the samples, it was not possible to break data down by age but the practise in the literature on essentialising appears to be ignore age and gender effects.

7.5 Conclusion

The empirical work conducted for this thesis was organised as a series of consecutive investigations that built upon the findings of each other, and a

common thread linked the experiments. The first stage of the research was represented by Study 1 and 2, which furnished some important material about a) the structure of essentialist beliefs, b) cultural differences in the way categories are essentialised, c) the role of personal category membership in essentialist beliefs, and d) the occurrence of individual styles in psychological essentialism. The finding about individual styles provided a solid ground for Study 3, which tested a scale of essentialist beliefs on two samples of subjects. Finally, Study 4 considered the impact of visual and verbal stimuli in the categorisation of individuals, distinguishing between behavioural and neutral information, and explored the perceived confidence of participants at categorising a target individual's personality traits under these three different conditions.

Overall, the present research programme provides an important understanding of essentialism from a broad perspective which considers the role of several aspects, from cultural factors, to category membership, and individual aspects in the way categories are seen. Also, factors that are external to an individual's will, like the presentation of some behavioural information about other individuals, strongly influence the perception of social categories or, more precisely, of individuals. Additionally, the present research raises important implications for the approach of essentialism, whose understanding should consider the interplay of subjective, objective, and contextual variables.

Future directions of research on psychological essentialism

The present thesis aimed to embrace psychological essentialism from a broader perspective than previous approaches. Essentialism still represents a recent trend of research in psychology that covers the last fifteen years in terms of systematic investigations. Thus, despite the effort made by its many

researchers, some of its domains still benefit from little investigation. My thesis wanted to address a number of questions to which little attention had been paid, and also wanted to give a glance into the width of the essentialism phenomenon. Several are the possible paths that future investigation can pursue.

One of the most interesting aspects that this doctoral work has found is the effect of social contexts at determining the attribution of essences to others. A number of factors have been observed to be affected by cultural contexts, and Study 1 and 2 especially stressed on those related to the perception of single categories and to the structure of essentialist beliefs in terms of how the Natural Kind and Entitativity dimensions are composed. While this aspect has now received strong support by the empirical investigation carried out for this thesis, a comprehensive explanation of why these differences occur is still somehow missing. Future research could address this aspect and provide further insight into the understanding of the mechanisms that made subjects from traditional settings judge single categories similarly to subjects from multicultural settings, but produce a structure of essentialist beliefs that was different from them.

The fact that some results were similar across similar cultural contexts while others changed, suggests that cultural contexts produce a multifaceted range of factors other than just saying that there are some fixed shifts of beliefs in individuals from traditional or modern cultures. Future research could analyse these mechanisms in more depth and bring new knowledge for the prevention of devaluing mechanisms towards minority groups, and for the making of a fairer society.

Another direction of research could be the analysis of different styles of essentialism across different group of subjects. Although not significant, the

trend shown by the investigation run with a sample of subjects affected by Autism Spectrum Disorder suggested that by improving the measurement scale and by sampling a broader number of subjects, different styles may be observed across different subjects. Thus, I would advice future researchers to improve the Four-Essentialism-Measure Scale, and in particular to run further testing on the items of the questionnaire in order to make them a strong measure of essentialist beliefs. This should support future work on the nature of the differences mentioned above.

Bibliography

Aarsleff, H. (1983). Language and Victorian ideology. *American scholar, 52,* 365-372.

Aiello A., & Pratto F. (2006). Dominanza Sociale e Relazioni Intergruppi. In A. Pierro (a cura di), *Prospettive psicologico-sociali sul potere.* Milano: Franco Angeli.

Allen, G. E. (1994). The genetic fix: The social origins of genetic determinism. In E. Tobach & B. Rosoff (Eds.), *Challenging racism and sexism: Alternatives to genetic explanations* (pp. 163–187). New York: Feminist Press.

Allport, G. W. (1954). *The nature of prejudice.* Cambridge, MA: Addison-Wesley.

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs, 47,* 1-171.

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (DSM-IVTR). Washington, DC: APA.

Anderson, N. H. (1974). Information integration: A brief survey. In D. H. Krantz, R. C. Atkinson, R. D. Luce, & P. Suppes (Eds.), *Contemporary developments in mathematical psychology (pp.* 236-305). San Francisco: Freeman.

Aristotle, Physics, Book IV, chapter 11, translated by R. P. Hardie and R. K. Gaye (2007). eBooks@Adelaide, The University of Adelaide Library, University of Adelaide, South Australia 5005. Retrieved from http://ebooks.adelaide.edu.au/a/aristotle/physics/book4.html on the 29th of May, 2012.

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41,* 258-290.

Asch, S. E. (1952). *Social psychology*. Englewood Cliffs, NJ: Prentice Hall.

Atran, S. (1990). *Cognitive foundations of natural history*. Cambridge: Cambridge University Press and Maison des Sciences de l'Homme.

Atran, S. (1998). Folk biology and the anthropology of science: Cognitive universals and cultural particulars. *Behavioural and Brain Sciences, 21,* 547-609.

Balaban, M. T., & Waxman, S. R. (1997). Do words facilitate object categorisation in 9-month-old infants? *Journal of Experimental Child Psychology, 64,* 3-26.

Barr, R. A., & Caplan, L. J. (1987). Category representations and their implications for category structure. *Memory & Cognition, 15,* 397–418.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition, 21,* 37-46.

Baron-Cohen, S., Wheelwright, S., Skinner, R., Martin, J., & Clubley, E. (2001). The autism-spectrum quotient (AQ): Evidence from Asperger syndrome / high-functioning autism, males and females, scientists and mathematicians. *Journal of Autism and Developmental Disorders, 31,* 5–17.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51,* 1173-1182.

Barret, H. C. (2001). On the functional origins of essentialism. *Mind and Society, 3,* 1-30.

Barsalou, L. W. (1985). Ideals, central tendency, and frequency of instantiation as determinants of graded structure in categories. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 11,* 629–654.

Barsalou, L. W. (1987). The instability of graded structure: Implications for the nature of concepts. In U. Neisser (Ed.), *Concepts and conceptual development: Ecological*

and intellectual factors in categorization. Cambridge: Cambridge University Press.

Barsalou, L. W. (1993). Flexibility, structure, and linguistic vagary in concepts: Manifestations of a compositional system of perceptual symbols. In *Theories of memory*, ed. Collins, A. C, Gathercole, S. E., Conway, M. A., 29-101. London: Lawrence Erlbaum Associates.

Bastian, B., & Haslam, N. (2006). Psychological essentialism and stereotype endorsement. *Journal of Experimental Social Psychology, 42,* 228–235.

Bastian, B., & Haslam, N. (2008). Psychological essentialism and social identification: Immigration from two perspectives. *Asian Journal of Social Psychology, 11,* 127–140.

Bastian, B., Loughnan, S., & Koval, P. (2011). Essentialist beliefs predict automatic motor-responses to social categories. *Group Processes Intergroup Relations, 14,* 559-567.

Berry, J. W. (1980). Ecological Analysis for Cross-Cultural Psychology. In N. Warren (Ed.), *Studies in Cross-Cultural Psychology* (pp. 158-189). London: Academic Press.

Berry, J. W. (1984). Multicultural policy in Canada: A social psychological analysis. *Canadian Journal of Behavioural Science, 16,* 353-370.

Berry, J.W. (2001). A psychology of immigration. *Journal of Social Issues, 57,* 611–627.

Berry, J. W., Poortinga, Y. H., Segall, M. H., & Dasen, P. R. (2002). *Cross-Cultural Psychology: Research and Applications.* Cambridge University Press.

Berthoud, R., Modood, T., Lakey, J., Nazroo, J., Smith, P., Virdee, S., & Beishon, S. (1997). *Ethnic Minorities in Britain: diversity and disadvantage*, Policy Studies Institute.

Bertoglio, K., & Hendren, R. L. (2009). New Developments in Autism. *Psychiatry Clinics of North America, 32,* 1–14.

Bieri, J. (1955). Cognitive complexity–simplicity and predictive behavior. *Journal of Abnormal and Social Psychology, 51,* 263–268.

Bloch, M., Solomon, G. E. A., & Carey, S. (2001). Zafimaniry: An understanding of what is passed on from parents to children: A cross-cultural investigation. *Journal of Cognition and Culture, 1,* 43-68.

Blok, S., Newman, G., & Rips, L. J. (2005). Individuals and their concepts. In W-K. Ahn, R. L. Goldstone, B. C. Love, A. B. Markman, & P. Wolff (Eds.), *Categorization inside and outside the lab* (pp. 127-149). Washington, D.C.: American Psychological Association.

Bloom, P. (1996). Intention, history, and artefact concepts. *Cognition, 60,* 1-29.

Bloom, P. (2000). *How children learn the meaning of words.* Cambridge, MA: MIT Press.

Bloom, P., & Gelman, S. A. (2008). Psychological essentialism in selecting the 14th Dalai Lama. *Trends in Cognitive Science, 12,* 243.

Boas, F. (1911). *The Mind of a Primitive Man.* The MacMillan Company, New York.

Boeree, C. G., (2009). *The ancient Greeks part two: Socrates, Plato, and Aristotle,* Webspace.ship.edu. Retrieved April 24, 2012, from http://webspace.ship.edu/cgboer/athenians.html

Bottazzi, G. *(1999). Eppur si muove! Saggio sulle peculiarità del processo di modernizzazione in Sardegna*. Cagliari, Cuec.

Braisby, F, Franks, B., & Hampton, J. A. (1996). Essentialism, word use, and concepts. *Cognition, 59,* 247-274.

Brewer, M. B., & Harasty, A. S. (1996). Seeing groups as entities: The role of perceiver motivation. In R. Sorrentino & E. T. Higgins(Eds.), *Handbook of motivation and cognition: Vol. 3. The interpersonal context.* New \brk: Guilford Press.

Brewer, M. B., & Miller, N. (1984). Beyond the contact hypothesis: Theoretical perspectives on desegregation. In N. Miller & M. B. Brewer (Eds), *Groups in contact: The psychology of desegregation* (pp. 281-302). Orlando, FL: Academic Press.

Brewer, M. B. (1988). A dual process model of impression formation. In R. S. Wyer & T. K. Srull (Eds.), *Advances in social cognition* (Vol. 1, pp. 1-36). Hillsdale, NJ: Erlbaum.

Brislin, R. W. (1976). Comparative research methodology: Cross-cultural studies. *International Journal of Psychology, 11(3),* 215-229.

Bruce, V., & Young, A. W. (1986). Understanding face recognition. *British Journal of Psychology, 77,* 305–327.

Bruce, V., & Young, A. (1998). *In the eye of the beholder: the science of face perception* (Oxford University Press, Oxford, England).

Bruner, J. (1990). *Acts of meaning.* Cambridge, MA: Harvard University Press.

Budner, S. (1962). Intolerance of ambiguity as a personal variable. *Journal of Personality, 30,* 29-50.

Buchanan, T., & Smith, J. L. (1985). Using the Internet for psychological research: Personality testing on the World Wide Web. *British Journal of Psychology, 90(1),* 125–144.

Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. *Behavioural Sciences, 3,* 14–25.

Caporael, L. R. (2005). Psychology and groups at the junction of genes and culture. *Behavioral and Brain Science, 28,* 819 – 821.

Carey, S. (1985). *Conceptual development in childhood*. Cambridge, MA: MIT Press.

Carey, S. (1995). On the origins of causal understanding. In D. Sperber, D. Premack, & A. J. Premack (Eds.), *Causal cognition: a multi-disciplinary approach* (pp. 268-308). Oxford: Clarendon Press.

Carey, S. (1996). Cognitive domains as mode of thought. In D. R. Olson & N. Torrance (Eds.), *Modes of thought: Explorations in culture and cognition* (pp. 187-215). New York: Cambridge University Press.

Carlson, G. N., & Pelletier, F. J. (Eds.) (1995). *The generic book*. Chicago: University of Chicago Press.

Carver, C. S., & Scheier, M. F. (2000). *Perspectives on personality* (4th ed.) Boston: Allyn and Bacon.

Castano, E., & Dechesne, M. (2005). On defeating death: Group reification and social identification as immortality strategies. In W. Strobe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 16). Hove, England: Psychology Press.

Castano, E., Paladino, M. P., Coull, A., & Yzerbyt, V. Y. (2002). Protecting the ingroup stereotype: Ingroup identification and the management of deviant ingroup members. *British Journal of Social Psychology, 41,* 365–385.

Castano, E., & Yzerbyt, V. Y. (1998). The highs and lows of group homogeneity. *Behavioural processes, 42,* 219-238.

Cattel, R. B. (1946). *Description and measurement of personality*. Oxford, England: World Book Company.

Chatman, J. A., Polzer; J. T., Barsade, S. G., & Neale, M. A. (1998). Being different yet feeling similar: The influence of demographic composition and organizational culture on work processes and outcomes. *Administrative Science Quarterly, 43,* 749-780.

Cimpian, A., & Solomon, E. (In Press). The inherence heuristic: An intuitive means of making sense of the world, and a potential precursor to psychological essentialism. To be published in *Behavioral and Brain Sciences.*

Clark, E. V., Gelman, S. A., & Lane, N. (1985). Noun compounds and category structure in young children. *Child Development, 56*, 84-94.

Cloutier, J., Mason, M. F., & Macrae, C. N. (2005). The perceptual determinants of person construal: Reopening the social-cognitive toolbox. *Journal of Personality and Social Psychology, 88,* 885–894.

Cohen, G. L. (2003). Party over policy: The dominating impact of group influence on political beliefs. *Journal of Personality and Social Psychology, 85(5),* 802-822.

Cole, M., Gay, J., Glick, J. A., & Sharp, D. W. (1971). *The cultural Context of Learning and Thinking.* Tavistock Publications, London.

Commission of the European Communities (2007). Third annual report on migration and integration. Retrieved 14 September 2012 from http://www.cizinci.cz/files/clanky/660/en_Third_Annual_Report_on_Migration_and_Integration.pdf.

Correl, J., & Park, B. (2005). A model of the ingroup as a social resource. *Personality and Social Psychology Bulletin, 9,* 341 – 359.

Cortes, B.P., Demoulin, S., Rodriguez, R.T., Rodriguez, A.P., & Leyens, J.Ph. (2005). Infra-humanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup, and the outgroup. *Personality and Social Psychology Bulletin, 31,* 243-253.

Costa, P. T. Jr, & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and individual differences, 13,* 653-665.

Costa, P. T. Jr, & McCrae, R. R. (1997). Longitudinal stability of adult personality. In R. Hogan, J. A. Johnson, S. Briggs (Eds.), *Handbook of Personality Psychology* (pp 269-90), San Diego: Academic Press.

Crisp, R. J. (2010a). Prejudice and perceiving multiple identities. In J. F. Dovidio, J. F. Hewstone, M. Glick, & V. M. Esses (Eds.), *Handbook of prejudice, stereotyping, & discrimination* (pp. 508–525). Thousand Oakes, CA: Sage.

Crisp, R. J. (2010b). *The psychology of social and cultural diversity.* Oxford, England: SPSSI-Blackwell.

Demoulin, S., Cortes, B. P., Viki, T. G., Rodriguez, A. P., Rodriguez, R. T., Paladino, M. P, & Leyens, J. P. (2009). The role of ingroup identification in infra-humanization. *International Journal of Psychology, 44,* 4-11.

Demoulin, S., Leyens, J. P., Paladino, M. P., Rodriguez, R. T., Rodriguez, A. P., & Dovidio, J. F. (2004). Dimensions of "uniquely" and "non-uniquely" human emotions. *Cognition and Emotion, 18,* 71-96.

Demoulin, S., Leyens, J. P., & Yzerbyt, V. (2006). Lay Theories of Essentialism. *Group Processes and Intergroup Relations; 9,* 24-42.

De Raad, B., & Szirmák, S. (1994). The search for the “Big Five” in a non-indo-European language: The Hungarian trait structure and its relationship to the EPQ and PTS. *European Journal of Applied Psychology, 44,* 17-26.

Devine, P. G. (1989). Stereotypes and prejudice: their automatic and controlled components. *Journal of Personality and Social Psychology, 56,* 5–18.

Diesendruck, G. (2001). Essentialism in Brazilian children's extensions of animals names. *Developmental Psychology, 37,* 49-60.

Diesendruck, G., & Gelman, S. A. (1999). Domain differences in absolute judgments of category membership: Evidence for an essentialist account of categorization. *Psychonomic Bulletin and Review, 6,* 338–346.

Digman, J. M. (1990). Personality Structure: Emergence of the five-factor model. *Annual Review of Psychology, 41,* 417-440.

Dovidio, J. F., Evans, N., & Tyler, R. B. (1986). Racial stereotypes: The contents of their cognitive representations. *Journal of Experimental Social Psychology, 22,* 22–37.

Dunbar, R. I. M., & Shultz, S. (2007). Evolution in the social brain. *Science, 317,* 1344.

Eberhardt, J. L., Dasgupta N., & Banaszynski, T. L. (2003). Believing Is Seeing: The Effects of Racial Labels and Implicit Beliefs on Face Perception. *Personality and Social Psychology Bulletin*, 29, 360-370.

Edwardes, C. (1889). *Sardinia and the Sardes*. R. Bentley and Son, London, 1889.

Essentialism, (2012). In *Encyclopædia Britannica*. Retrieved 24 April, 2012, from http://www.britannica.com/EBchecked/topic/1296094/essentialism.

Estes, Z. (2003). Domain differences in the structure of artifactual and natural categories. *Memory & Cognition, 31,* 199-214.

Estes, Z. (2004). Confidence and gradedness in semantic categorization: Definitely somewhat artifactual, maybe absolutely natural. *Psychonomic Bulletin & Review, 11 (6),* 1041-1047.

Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire* (*adult and junior*). London: Hodder & Stoughton.

Ferguson, G. A. (1956). On transfer and the abilities of a man. *Canadian Journal of Psychology, 10,* 121-131.

Fiske, D. W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal and Social Psychology, 44,* 329-344.

Fiske, S. T, & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. In M. P. Zanna (Ed.). *Advances in experimental social psychology, 23*, 1-74. New \brk: Academic Press.

Flavell, J. H., Flavell, E. R., & Green, F. L. (1983). Development of the appearance-reality distinction. *Cognitive Psychology, 15,* 95-120.

Fodor, J. (1998). *Concepts: Where Cognitive Science Went Wrong*. Oxford University Press.

Fowers, B. J., & Davidov, B. J. (2006). The virtue of multiculturalism: personal transformation, character, and openness to the other. *The American Psychologist, 61*, 581-94.

Frazier, B. N., & Gelman, S. A. (2009). Developmental changes in judgments of authentic objects. *Cognitive Development, 24,* 284-292.

Frith, C. D. (2008). Social cognition. *Philosophical Transactions of the Royal Society of Biological Sciences, 363,* 2033–2039.

Frith, U. (1989). *Autism: Explaining the Enigma.* Oxford: Blackwell.

Frith, U. (2001). Mind blindness and the brain in autism. *Neuron, 32,* 969–979, Cell Press.

Frith, U. (2002). Autism, Asperger syndrome and brain mechanisms for the attribution of mental states to animated shapes. *Brain, 125,* 1839-1849.

Frith, U. (2004). Emanuel Miller lecture: Confusions and controversies about Asperger syndrome. *Journal of Child Psychology and Psychiatry, 45,* 672–686.

Frith, U., & Happé, F. (1994). Autism: Beyond 'theory of mind'. *Cognition, 50,* 115-132.

Fulkerson, A. L., & Waxman, S. R. (2007). Words (but not tones) facilitate object categorization: evidence from 6- and 12-month-olds. *Cognition, 105,* 218–228.

Galton, F. (1884). Measurement of character. *Fortnightly Review, 36,* 179-185.

Gangestad, S., & Snyder, M. (1985). 'To carve nature at its joints': On the existence of discrete classes in personality. Psychological Review, 92, 317-349.

Gardner, R. W., Holzman, P. S., Klein, G. S., Linton, H. B., & Spence, D. P. (1959). *Cognitive control. A study of individual consistencies in cognitive behavior: Part 4. Psychological issues.* New York: International Universities Press.

Gaunt, R., Leyens, J. P., & Sindic, D. (2004). Motivated reasoning and the attribution of emotions to ingroup and outgroup. *International Review of Social Psychology, 17,* 5-20.

Gelman, S. A. (1988). Development of induction within natural kind and artifact categories. *Cognitive Psychology, 20,* 65-95.

Gelman, R. (1990). First principles organize attention to and learning about relevant data: Number and animate–inanimate distinction as examples. *Cognitive Science, 14,* 79–106.

Gelman, S. A. (2003). *The essential child.* Oxford Series in Cognitive Development. Oxford University Press, Inc.

Gelman, S. A. (2004). Psychological essentialism in children. *Trends in Cognitive Sciences, 8,* 404-409.

Gelman, S. A. (2009a). Essentialist reasoning about the biological world. In A. Berthoz & Y. Christen (Eds.), *Neurobiology of "Umwelt": How living beings perceive the world* (pp. 7-16). Springer.

Gelman, S. A. (2009b). Learning from others: Children's construction of concepts. *Annual review of Psychology, 60,* 115-140.

Gelman, S. A., & Coley, J. D. (1990). The importance of knowing a dodo is a bird: Categories and inferences in 2-year-old children. *Developmental Psychology, 26,* 796 – 804.

Gelman, S. A., Coley, J. D., & Gottfried, G. M. (1994). Essentialist beliefs in children: The acquisition of concepts and theories, in L.A. Hirschfeld & S.A. Gelman (Eds.), *Mapping the mind: Domain specificity in cognition and culture* (Cambridge, Cambridge University Press).

Gelman, S. A., Coley, J. D., Rosengren, K., Hartman, E., & Pappas, A. (1998). Beyond labeling: The role of maternal input in the acquisition of richly-structured categories. *Monographs of the Society for Research in Child Development, 63,* 1-148.

Gelman, S. A., & Markman, E. M. (1986). Categories and induction in young children. *Cognition, 23,* 183–209.

Gelman, S. A., & Meyer, M. (2011). Child categorization. *Wiley Interdisciplinary Reviews: Cognitive Science, 2,* 95-105.

Gelman, S. A., & Opfer, J. (2002). Development of the animate-inanimate distinction. In U. Goswami (Ed.), *Blackwell handbook of childhood cognitive development* (pp. 151-166). Malden, MA: Blackwell.

Gelman, S. A., & Tardif, T. Z. (1998). Generic noun phrases in English and Mandarin: an examination of child-directed speech. *Cognition, 66,* 215-248.

Gelman, S. A., Taylor, M. G., & Nguyen, S. P. (2004). Mother-child conversations about gender. *Monographs of the Society for Research in Child Development, 69,* 33-63.

Gelman, S. A., & Wellman, H. M. (1991). Insides and essences: early understandings of the non-obvious. *Cognition, 38,* 213–244.

Gentner, D., & Goldin-Meadow, S. (2003). *Language in Mind: Advances in the Study of Language and Thought*. Cambridge, MA: MIT Press.

Gerschenkron, A. (1962). On the concept of continuity in history. *Proceedings of the American Philosophical Society, 106,* 195-209.

Gilbert, D. T., Malone, P. S. (1995). The correspondence Bias. *Psychological Bulletin, 117 (1),* 21-38.

Gil-White, F. (2001). Are ethnic groups biological "species" to the human brain? *Current Anthropology, 42,* 515-554.

Girardi, E. N. (1967). *Buonarroti Michelangelo, Rime*. Laterza, Bari.

Goldberg, L. R. (1976). Language and personality: Toward a taxonomy of trait-descriptive terms. *Istanbul Studies in Experimental Psychology, 12,* 1-23.

Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. In L. Wheeler (Ed.), *Review of Personality and Social Psychology* (pp. 141-165). Beverly Hills, CA: Sage.

Goldberg, L. R. (1990). An alternative "description of personality": The Big Five factor structure. *Journal of Personality and Social Psychology, 59,* 1216-1229.

Goldman, A. I. (1999). *Knowledge in a social world*. USA: Oxford University Press.

Gopnik, A., & Meltzoff, A. N. (1997). *Words, thoughts, and theories.* Cambridge, MA: MIT Press.

Greenfield, P. M., Keller, H., Fuligni, A., & Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology, 54,* 461-490.

Hall, D. G. (1999). Semantics and the acquisition of proper names. In R. Jackendoff, P. Bloom, & K. Wynn (Eds). *Language, logic, and concepts: Essay in memory of John Macnamara.* Cambridge, MA: MIT Press.

Hamilton, D. L. (1988). Causal attribution viewed from an information processing perspective. In D. Bar-Tal & A. W. Kruglanski (Eds.), *The social psychology of knowledge (pp.* 359-385). Cambridge, England: Cambridge University Press.

Hamilton, D. L., & Sherman, S. J. (1996). Perceiving persons and groups. *Psychological Review, 103,* 336–355.

Hamilton, D. L., Sherman, S. J., & Lickel, B. (1998). Perceiving social groups: The importance of the Entitativity Continuum. In C. Sedikides, J. Schopler, & C. A. Insko (Eds.), *Intergroup cognition and intergroup behavior* (pp. 47–74). Mahwah, NJ: Erlbaum.

Hamilton, D. L., Sherman, S. J., & Castelli, L. (2002). A group by any other name: The role of entitativity in group perception. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology* (Vol. 12, pp. 139 – 166). Chichester, England: Wiley.

Hampden-Turner, C., & Trompenaars, A. (1993). *The seven cultures of capitalism: Value systems for creating wealth in the United States, Japan, Germany, France, Britain, Sweden, and the Netherlands.* New York: Doubleday.

Hampton, J. A. (1988). Overextension of conjunctive concepts: Evidence for a unitary model of concept typicality and class inclusion. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 14,* 12–32.

Hampton, J. A. (1995). Testing the prototype theory of concepts. *Journal of Memory and Language, 34,* 686–708.

Hampton, J. A. (1998). Similarity-based categorization and fuzziness of natural categories. *Cognition, 65,* 137-165.

Hampton, J. A. (1999). Concepts. Lead article for the *MIT Encyclopedia of Cognitive Science*. pp. 176-179. Cambridge, MA: MIT Press.

Hampton, J. A. (2007). Typicality, graded membership and vagueness. *Cognitive Science, 31,* 355–383.

Hampton, J.A. (2010). Concepts in Human Adults. In D. Mareschal, P. Quinn & S. E. G. Lea (Eds.). *The Making of Human Concepts*, (pp. 293-311). Oxford: Oxford University Press.

Hampton, J. A., & Dubois, D. (1993). Psychological models of concepts. *In* Van Mechelen et al., (Eds.) *Categories and concepts: Theoretical views and inductive data analysis (11-34).* London: Academic Press.

Hampton, J. A., Estes, Z., Simmons, S. (2007). Metamorphosis: Essence, appearance, and behavior in the categorization of natural kinds. *Memory & Cognition, 35,* 1785-1800.

Hanfmann, E. (1941). A study of personal patterns in an intellectual performance. *Character and Personality, 9,* 315–325.

Happé, F. G. E. (1997) Central coherence and theory of mind in autism: reading homographs in context. *British Journal of Developmental Psychology, 15,* 1-12.

Happé, F. (1999). Autism: Cognitive deficit or cognitive style? *Trends in Cognitive Sciences, 3,* 216-222.

Happe´, F., & Frith, U. (1996). The neuropsychology of autism. *Brain, 119,* 1377–1400.

Happé, F., & Frith, U. (2006). The weak coherence account: Detail-focused cognitive style in autism spectrum disorders. *Journal of Autism and Developmental Disorders, 36,* 5–25.

Harvey, O. J., Hunt, D. E., & Schroder, H. M. (1961). *Conceptual systems and personality organization.* New York: Wiley.

Haslam, N. (2006). Dehumanization: An integrative review. *Personality and Social Psychology Review, 10,* 252-264.

Haslam, N., & Bain, P. (2007). Humanizing the self: Moderators of the attribution of lesser humanness to others. *Personality and Social Psychology Bulletin, 33,* 57–68.

Haslam, N., Bain, P., Douge, L., Lee, M., & Bastian, B. (2005). More human than you: Attributing humanness to self and others. *Journal of Personality and Social Psychology, 89,* 973-950.

Haslam, N., Bastian, B., Bain, P., & Kashima, Y. (2006). Theories, and Intergroup Relations. *Group Processes and Intergroup Relations, 9,* 63-76.

Haslam, N., Bastian, B., & Bissett, M. (2004). Essentialist beliefs about personality and their implications. *Personality and Social Psychology Bulletin, 30,* 1661–1673.

Haslam, N., Kashima, Y., Loughnan, S., Shi, J., & Suitner, C. (2008). Subhuman, inhuman, and superhuman: Contrasting humans with non-humans in three cultures. *Social Cognition, 26,* 248-258.

Haslam, N., Rothschild, L., & Ernst, D. (2000). Essentialist beliefs about social categories. *British Journal of Social Psychology, 39,* 113–127.

Haslam, N., & Ernst, D. (2002). Essentialist beliefs about mental disorders. *Journal of Social and Clinical Psychology, 21,* 628-644.

Haslam, N., Rothschild, L., & Ernst, D. (2002). Are essentialist beliefs associated with prejudice? *British Journal of Social Psychology, 41,* 87–100.

Haslam, N., Rothschild, L., & Ernst, D. (2004). Essentialism and entitativity: Structures of beliefs about the ontology of social categories. In V. Yzerbyt, C. M. Judd, & O. Corneille (Eds.), *The psychology of group perception. Perceived variability, entitativity, and essentialism* (pp. 61– 78). London: Psychology Press.

Haxby, J. V., Hoffman, E. A., & Gobbini, M. I. (2000). The distributed neural system for face perception. *Trends in Cognitive Sciences, 4,* 223-233.

Haxby, J. V., Hoffman, E. A., & Gobbini, M. I. (2002). Human neural systems for face recognition and social communication. *Society of Biological Psychiatry, 51,* 59-67.

Heckmann, F., & Schnapper, D., (2003). *The integration of immigrants in European societies. National differences and trends of convergence*. Lucius & Lucius Verlagsgesellschaft mbH Stuttgart.

Heine, S., & Ruby, M. B. (2010). Cultural Psychology. *Wiley Interdisciplinary Reviews: Cognitive Science, 1(2).*

Heyman, G. D., & Gelman, S. A. (2000). Preschool children's use of traits labels to make inductive inferences. *Journal of Experimental Child Psychology, 77,* 1–19.

Hirschfeld, L. A. (1994). Is the acquisition of social categories based on domain-specific competences or on knowledge transfer? In L. A. Hirschfeld & S. A. Gelman (Eds.), *Mapping the mind: Domain specificity in cognition and culture* (Cambridge, Cambridge University Press).

Hirschfeld, L.A. (1995). Do children have a theory of race? *Cognition, 54,* 209-252.

Hirschfeld, L. A. (1996). *Race in the making: Cognition, culture, and the child's construction of human kinds*. Cambridge, MA: MIT Press.

Hirschfeld, L.A. (1997). The conceptual politics of race. *Ethos, 25,* 63-92.

Hirschfeld, L. A. (2001). On a Folk Theory of Society: Children, Evolution, and Mental Representations of Social groups. *Personality and Social Psychology Review, 5,* 107-117.

Hirschfeld, L.A., & Gelman, S.A. (1997). What young children think about the relation between language variation and social difference. *Cognitive Development, 12,* 213–238.

Hoffman, C., & Hurst, N. (1990). Gender stereotypes: Perception or rationalization? *Journal of Personality and Social Psychology, 58,* 197– 208.

Hong, Y., Chan, G., Chiu, C., Wong, R. Y. M., Hansen, I. G., Lee, S., et al. (2003). How are social identities linked to self-conception and intergroup orientation? The moderating effect of implicit theories. *Journal of Personality and Social Psychology, 85,* 1147–1160.

Hood, B. (2009). *Supersense: From Superstition to Religion- The Brain Science of Belief*. Paperback.

Hull, C. L. (1920). Quantitative aspects of the evolution of concepts. *Psychological Monographs,* XXVIII.

Hume, D. (first published anonymously in 1739). *A treatise of Human Nature*. eBooks@Adelaide, retrieved from http://ebooks.adelaide.edu.au/h/hume/david/h92t/, on the 21st, June, 2012.

Inhelder, B., & Piaget, J. (1964). *The Early Growth of Logic in the Child*. Norton.

Iwata, J., & LeDoux, J. E. (1988). Dissociation of associative and non-associative concomitants of classical fear conditioning in the freely behaving rat. *Behavioural Neurosciences, 102,* 66-76.

John, O. P., & Srivastava, S. (1999). The Big-Five trait taxonomy: History, measurement, and theoretical perspectives (114-158). L. Pervin & O.P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed.). New York: Guilford.

Jung, C.G. ([1921] 1971). *Psychological Types, Collected Works.* Volume 6, Princeton, N.J.: Princeton University Press.

Kagan, J. (1965). Impulsive and reflective children: significance of conceptual tempo. In: J. D. Krumboltz (Ed.) *Learning and the Educational Process*, Chicago, Rand McNally.

Kagan, J. (1966). Reflection–impulsivity: The generality and dynamics of conceptual tempo. *Journal of Abnormal Psychology, 71,* 17–24.

Kalin, R., & Berry, J. W. (1995). Ethnic and civic self-identity in Canada: Analyses of 1974 and 1991 national surveys. *Canadian Ethnic Studies, 27*, 1–15.

Kalish, C. W. (1995). Essentialism and graded membership in animal and artefact categories. *Memory & Cognition, 23*, 335-353.

Kalish, C. W. (2002). Essentialist to some degree: Beliefs about the structure of natural kind categories. *Memory & Cognition, 30,* 340-352.

Karmiloff-Smith, A., & Inhelder, B. (1975). "If you want to get ahead, get a theory". *Cognition, 23*, 95–147.

Kaufmann, G. (1989). *The assimilator-explorer inventory*. Bergen, Norway: University of Bergen.

Keil, F. C. (1989). *Concepts, kinds, and cognitive development*. Cambridge, MA: MIT Press.

Keil, F.C. (1994). The birth and nurturance of concepts by domains: The origins of concepts of living things. In L. A. Hirschfeld & S. A. Gelman (Eds.), *Mapping the Mind: Domain Specificity in Cognition and Culture*. New York: Cambridge University Press.

Keller, C. A. (2005). In genes we trust: The biological components of psychological essentialism and its relationship to mechanisms of motivated social cognition. *Journal of Personality and Social Psychology, 88,* 686-702.

Kelly, M. H., Bock, J. K., & Keil, F. C. (1986). Prototypicality in a linguistic context: Effects on sentence structure. *Journal of Memory and Language, 25,* 59–74.

Kitchen, A. K. (1982). *Pharaoh triumphant: The life and times of Ramesess II, King of Egypt.* Aris & Phillips.

Kirton, M. J. (1976). Adaptors and innovators, a description and measure. *Journal of Applied Psychology, 61,* 622–629.

Kirton, M. J. (1977). *Kirton Adaptation-Innovation Inventory* [Research edition]. London: National Federation for Educational Research.

Klein, G. S., & Schlesinger, H. J. (1951). Perceptual attitudes toward instability: Prediction of apparent movement experiences from Rorschach responses. *Journal of Personality, 19,* 289–302.

Kornblith, H. (1993). *Inductive inference and its natural ground: An essay in naturalistic epistemology.* Cambridge, MA: MIT Press.

Kozhevnikov, M. (2007). Cognitive styles in the context of modern psychology: Toward an integrated framework of cognitive style. *Psychological Bulletin, 133,* 464–481.

Kramer, R.M. (1988). Windows of vulnerability or cognitive illusions? Cognitive processes and the nuclear arms race. *Journal of Experimental Social Psychology, 25*, 79-100.

Kripke, S. (1980). *Naming and necessity*. Cambridge, MA: Harvard University Press.

Lefebvre, C., & Cohen, H. (Eds.) (2005). *Handbook on categorization*. Elsevier

Legare, C. H., Gelman, S. A., & Wellman, H. M (2010). Inconsistency with prior knowledge triggers children's causal explanatory reasoning. *Child Development, 81*, 929–944.

Lerner, R. M. (1992). *Final solutions: biology, prejudice, and genocide*. Penn State University Press.

Levinson, J. (1993). Extending art historically. *Journal of Aesthetics and Art Criticism, 51*, 411-423.

Lévi-Strauss, C. (1996). *The savage mind*. University of Chicago Press.

Lewin, K. (1935). A dynamic theory of personality. McGraw Hill custom Publishing, New York.

Lewis, M. H., Tanimura, Y., Lee, L. W., & Bodfish, J. W., (2007). Animal models of restricted repetitive behaviour in autism. *Behavioural Brain Research, 176,* 66–74.

Lewontin, R. C., Rose, S., & Kamin, L. J. (1984). *Not in our genes. Biology, ideology, and human nature.* New York: Pantheon Books.

Leyens, J. P., Cortes, B. P., Demoulin, S., Dovidio, J. F., Fiske, S. T., Gaunt, R., et al. (2003). Emotional prejudice, essentialism, and nationalism. The 2002 Tajfel lecture. *European Journal of Social Psychology, 33,* 704-717.

Leyens, J. P., Paladino, P. M., Rodriguez-Torres, R., Vaes, J., Demoulin, S., Rodriguez-Perez, et al. (2000). The emotional side of prejudice: The attribution of

secondary emotions to ingroups and outgroups. *Personality and Social Psychology Review, 4,* 186-197.

Leyens, J. P., Rodriguez, A. P., Rodriguez, R. T., Gaunt, R., Paladino, P. M., Vaes, J., et al. (2001). Psychological essentialism and the attribution of uniquely human emotions to ingroups and outgroups. *European Journal of Social Psychology, 31,* 395-411.

Lickel, B., Hamilton, D., Wieczorkowska, G., Lewis, A. C., Sherman, S. J., & Uhles, A. N. (2000). Varieties of groups and the perception of group entitativity. *Journal of Personality and Social Psychology, 78,* 223–246.

Lockhart, K. L., Nakashima, N., Inagaki, N., & Keil, F. C. (2009). From ugly duckling to swan? Japanese and American beliefs about the stability and origins of traits. *Cognitive Development, 23,* 155-179.

Lord, C., Cook, E. H., Leventhal, B. L., & Amaral, D. G. (2000). Autism spectrum disorders. *Neuron, 28,* 355–363.

Lord, C., Risi, S., Lambrecht, L., Cook, E. H., Leventhal, B. L., DiLavore, P. C., Pickles, A., & Rutter, M. (2000). The Autism Diagnostic Observation Schedule-Generic: A standard measure of social and communication deficits associated with the spectrum of autism. *Journal of Autism and Developmental Disorders, 30,* 205-223.

Loughnan, S., & Haslam, N. (2007). Animals and androids. Implicit associations between social categories and nonhumans. *Psychological Science, 18,* 116-121.

Lutsky, N. S., Bacon, P. L., & Dawson, K. L. (1994). *The more things stay the same: Stability in person perception.* Paper presented at the 102nd Annual Convention of the American Psychological Association, Los Angeles,

Maass, A., Karasawa, M., Politi, F., & Suga, S. (2006). Do verbs and adjectives play different roles in different cultures? A cross-linguistic analysis of person representation. *Journal of Personality and Social Psychology, 90*, 734-50.

Machery, E. (2005). Concepts are not a natural kind. *Philosophy of Science, 72*, 444-467.

Machery, E. (2009). *Doing without concepts.* Oxford University Press.

Machery, E., & Faucher, L. (2005). Why do we think racially? In H. Cohen & C. Lefebvre (eds.), *Handbook of Categorization in Cognitive Science*, Elsevier (pp. 1009-1033).

Macrae, C. N., Quinn, K. A., Mason, M. F., & Quadflieg, S. (2005). Understanding Others: The Face and Person Construal. *Journal of Personality and Social Psychology, 89(5),* 686–695.

Malt, B. C., & Johnson, E. J. (1992). Do artefact concepts have cores? *Journal of Memory and Language, 31,* 195-217.

Mahalingam, R. (2003). Essentialism, culture, and power: Representations of social class. *Journal of Social Issues, 59,* 733-749.

Markman, E. M. (1989). *Categorisation and naming in children: Problems in induction.* Cambridge: Bradford Book/MIT Press.

Macrae, N., & Bodenhausen, G. V. (2000). Social Cognition: Thinking categorically about others. *Annual Review Psychology, 51,* 93-120.

Macrae, C. N., Quinn, K. A., Mason, M. F., & Quadflieg, S. (2005). Understanding others: The face and person construal. *Journal of Personality and Social Psychology, 89,* 686–695.

Mahalingam, R. (1998). Essentialism, power and theories of caste: A developmental study. *Dissertation Abstracts International, 60 (2-B).* (UMI No. AAM9919309)

Mahalingam, R. (2001, May).Intersectionality: Understanding the interplay between social location. Paper presented at the conference, "Intersectionality: Race, class and gender," Ann Arbor, Michigan.

Mahalingam, R. (2003). Essentialism, culture, and power: Representations of social class. *Journal of Social Issues, 59(4),* 733-749.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224-253.

Martin, C. L., & Parker, S. (1995). Folk theories about sex and race differences. *Personality and Social Psychology Bulletin, 21,* 45–57.

Mastin, L. (2008). *Essentialism, The basics of Philosophy.* Retrieved April 24, 2012, from http://www.philosophybasics.com/branch_essentialism.html

Mayr, E. (1991). *One long argument: Charles Darwin and the genesis of modern evolutionary thought.* Cambridge, MA: Harvard University Press.

McCrae, R. R., & Costa, P. T. (1985a). Updating Norman's adequate taxonomy: Intelligence and personality dimensions in natural language and in questionnaires. *Journal of Personality and Social Psychology, 49,* 710-721.

McCrae, R. R., & Costa, P. T. (1985b). Openness to experience. In R. Hogan & W. H. Jones, *Perspectives in personality* (Vol. 1, pp. 145-172). Greenwich, CT: JAI Press.

McCrae, R. R., & Costa, P. T. (1985c). Comparison of EPI and psychoticism scales with measures of the five-factor model of personality. *Personality and Individual Differences, 6,* 587-597.

McCrae, R. R., & Costa, P. T. (1997). Personality trait structure as a human universal. *American Psychologist, 52,* 509-516.

McGarty, C., Haslam, S. A., Hutchinson, K. J., & Grace, D. M. (1995). Determinants of perceived consistency: The relationship between group entitativity and the meaningfulness of categories. *British Journal of Social Psychology*, *34,* 237-256.

McQuail, D. (1979). The influence and effects of mass media. In J. Curran, M. Gurevitch, J. Woolacott, *Mass Communication and Society*, 70-93, Sage Publications, Inc.

Medin, D. L. (1989). Concepts and conceptual structure. *American Psychologist, 44,* 1469-1481.

Medin, D. L, Coley, J. D., Storms, G., & Hayes, B. K., (2003). Running head: A relevance theory of induction. *Psychonomic Bulletin & Review, 10,* 517–532.

Medin, D. L., & Ortony, A. (1989). Psychological essentialism. In S. Vosniadou & A. Ortony (Eds), *Similarity and analogical reasoning,* 179–195, Cambridge University Press.

Medin, D. L., & Schaffer, M. M. (1978). Context theory of classification learning. *Psychological Review, 85,* 207-238.

Mervis, C. B., Catlin, J., & Rosch, E. (1976). Relationships among goodness-of-example, category norms, and word frequency. *Bulletin of the Psychonomic Society, 7,* 283–284.

Messick, S. (1976). Personality consistencies in cognition and creativity. In S. Messick and Associates. *Individuality in Learning*. Jossey-Bass., Inc. Publishers, San Francisco, CA.

Messick, S., & Mackie, D. M. (1989). lntergroup relations. *Annual Review of Psychology, 40,* 45-81.

Mesquita, B., Feldman Barrett, L., & Smith, E. R. (2010). *The mind in context.* The Guildford Press.

Miller, J. C. (1984). Culture and the Development of Everyday Social Explanation. *Journal of Personality and Social Psychology, 46,*961-978.

Miller, J. C. (1987). Cultural influences on the development of conceptual differentiation in personal description. *British Journal of Developmental Psychology, 5,* 309-319.

Mischel, W., & Shoda, Y. (2008). Toward a unified theory of personality: Integrating dispositions and processing dynamics within the Cognitive-Affective Processing System (CAPS). In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of Personality* (3rd Ed., pp. 208-241). New York: Guilford.

Murdock, B. B. (1962). The serial position effect of free recall. *Journal of Experimental Psychology, 64,* 482-488.

Murphy, G. L. (2002). *The Big Book of Concepts.* MIT Press.

Murphy, G. L., & Medin, D. L. (1985). The role of theories in conceptual coherence. *Psychological Review, 92,* 289–316.

Myers, I. B., & McCaulley, M. N. (1985). *Manual: A guide to the development and use of the Myers–Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologist Press.

Myers, I., McCaulley, M., Quenk, N., & Hammer, A. (1998). *MBTI manual. A guide to the development and use of the Myers-Briggs type indicator, third edition,* Palo Alto, Consulting Psychologists Press, Inc.

Newman G. E., & Keil, F. C., (2008). Where is the essence? Developmental shifts in children's beliefs about internal features. *Child Development, 79,* 1344-1356.

Nisbett, R. E. (2003). *The Geography of Thought. How Asians and Westerners Think Differently...and Why.* Free Press, New York.

Nosek, B. A., & Banaji, M. R. (2001). The go/no-go association task. *Social Cognition, 19,* 625-664.

Ostrom, T. M., Lingle, J. H., Pryor, J. B., & Geva, N. (1980). Cognitive organization of person impressions. In R. Hastie, T. M. Ostrom, E. B. Ebbesen, R. S. Wyer, Jr., D. Hamilton, & D. E. Carlston (Eds.), *Person memory: The cognitive basis of social perception* (pp. 55-88). Hillsdale, NJ: Erlbaum.

Oyserman, D., Coon, H., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128,* 3–72.

Oyserman, D., & Lee, S. W. S., (2008). Does Culture Influence What and How We Think? Effects of Priming Individualism and Collectivism. *Psychological Bulletin, 134,* 311–342.

Oyserman, D., Sorensen, N., Reber, R., Sannum, P., & Chen, S. (2008). *What did you say? What did you say? "I" pay attention to one thing; "We" listen to everything.* Unpublished manuscript. University of Michigan, Ann Arbor.

Paladino, M. P., & Castelli, L. (2008). On the immediate consequences of intergroup categorization: Activation of approach and avoidance motor behavior toward ingroup and outgroup members, *Personality and Social Psychology Bulletin, 34,* 755–768.

Pask, G., & Scott, B. C. E. (1972). Learning strategies and individual competence. *International Journal of Man-Machine Studies, 4,* 217– 253.

Pellicano, E., Smith, A. D., Cristino, F., Hood, B. M., Briscoe, J., & Gilchrist, I. D. (2010). Children with autism are neither systematic nor optimal foragers. *Psychological and Social Cognitive Sciences, 108,* 421-426.

Perdue, C. W., & Gurtman, M. B. (1990). Evidence for the automaticity of ageism. *Journal of Experimental Social Psychology, 26,* 199–216.

Pfeffer, J. (1983). Organizational demography. In L. L. Cummings & B. M. Staw (eds.), *Research in Organizational Behavior, 5,* 299-357. Greenwich, CT: JAI Press.

Phelps, J. M., Eilertsen, D. E., Rken, S. T., & Ommundsen, R. (2011). Integrating immigrant minorities: Developing a scale to measure majority members' attitudes toward their own proactive efforts. *Scandinavian Journal of Psychology, 52,* 404–410.

Piaget, J. (1929). *The child's conception of the world.* London: Routledge and Kegan Paul.

Prinz, J. J. (2004). *Gut reactions.* New York: Oxford University Press.

Quinn, K. A., Macrae, C. N. (2005). Categorizing Others: The Dynamics of Person Construal. *Journal of Personality and Social Psychology, 88(3),* 467–479.

Rangel, U., & Keller, J. (2011). Essentialism goes social: Belief in social determinism as a component of psychological essentialism. *Journal of Personality and Social Psychology, 100,* 1056–1078.

Rhodes, M., & Gelman, S. A. (2009). A developmental examination of the conceptual structure of animal, artifact, and human social categories across two cultural contexts. *Cognitive Psychology, 59,* 244-274.

Richeson, J. A., & Nussbaum, R. J. (2004). The impact of multiculturalism versus color-blindness on racial bias. *Journal of Experimental Social Psychology, 40,* 417–423.

Rips, L. J., Blok, S., & Newman, G. (2006). Tracing the identity of objects. *Psychological Review, 113,* 1-30.

Risse, T. (2003). The Euro between national and European identity. *Journal of European Public Policy, 10,* 487–505.

Robertson, R. (1992). *Globalisation. Social Theory and Global Culture.* London, Sage.

Rodríguez-Pérez, A., Delgado-Rodríguez, N., Betancor-Rodríguez, V., Leyens, J. P., & Vaes, J. (2011). Infra-humanization of outgroups throughout the world. The role of similarity, intergroup friendship, knowledge of the outgroup, and status. *Anales de Psicología, 27,* 679-687. Special Issue "Prejudice: Socio-developmental perspectives".

Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General, 104,* 192–233.

Rosch, E. (1978). Principles of categorization. In B.E. Rosch & B.B. Lloyd (Eds.), Cognition and categorization (pp. 28–49). Hillsdale, NJ: Erlbaum.

Rosch, E., & Mervis, C. B. (1975). Family resemblance: Studies in the internal structure of categories. *Cognitive Psychology, 7,* 573–605.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monograph, 80,* 1–28.

Rothbart, M., Fulero, S., Jensen, C, Howard, J., & Birrell, P. (1978). From individual to group impressions: Availability heuristics in stereotype formation. *Journal of Experimental Social Psychology, 14,* 237-255.

Rothbart, M., & Taylor M. (1992). Category labels and social reality: Do we view social categories as natural kinds? In G. R. Semin & K. Fiedler (Eds), *Language, interaction and social cognition* (pp. 11-36). Thousand Oaks, CA: Sage.

Rudiger, A., & Spencer, S. (2003). Social Integration of Migrants and Ethnic Minorities Policies to Combat Discrimination. The Economic and Social Aspects of Migration. Conference Jointly Organised by The European Commission and the

OECD. Retrieved 14 September 2012 from http://www.oecd.org/migration/internationalmigrationpoliciesanddata/15516956.pdf

Rule, N. O., & Ambady, N. (2011). Judgements of power from college yearbook photos and later career success. *Social Psychological and Personality Science, 2,* 154-158.

Rust, J., & Golombok, S. (2009). *Modern Psychometrics: The science of psychological assessment.* Routledge Press, London.

Salgado, J. F. (1997). The five factor model of personality and job performance in the European Community. *Journal of Applied Psychology, 82,* 30-43.

Salice, G. (in press). Généalogie d'un mythe. Le cas de la Sardaigne in N. Bourguinat (dir.), *Meridionalité et insularité. L'invention d'une Europe du Sud*, XVIIIe-XXe siècles, PUS.

Saucier, G., & Goldberg, L. R. (1996). The language of personality: Lexical perspectives on the five-factor model. In J. S. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives.* New York: Guilford.

Schneider, D. J., Hastorf, A. H., & Ellsworth, P. C. (1979). *Person perception* (2nd ed.). Reading, MA: Addison-Wesley.

Schopenhauer, A. (2010). *The world as will and representation*. Cambridge University Press.

Schwartz, S. H., & Struch, N. (1989). Values, stereotypes, and intergroup antagonism. In D. Bar-Tal, C. F. Grauman, A. W. Kruglanski, & W. Stroebe (Eds.), *Stereotypes and prejudice: Changing conceptions* (pp. 151-167), New York: Springer-Verlag.

Schulz, S., Stenzhorn, H., & Boeker, M. (2008). The ontology of biological taxa. *Bioinformatics, 24,* i313-i321.

Shah, A., & Frith, U. (1993). Why do autistic individuals show superior performance on the Block Design task? *Journal of Child Psychology and Psychiatry, 34,* 1351-1364.

Sinclair, L., & Kunda, Z. (1999). Reactions to a black professional: motivated inhibition and activation of conflicting stereotypes. *Journal of Personality Social Psychology, 77,* 885-904.

Smith, E. E., & Medin, D. L. (1981). *Categories and Concepts.* Cambridge, MA: Harvard University Press.

Solomon, G. E. A. (2002). Birth, kind, and naive biology. *Developmental Science, 5,* 213–218.

Solomon, G. E. A., Johnson, S. C., Zaitchik, D., & Carey, S. (1996). Like lather, like son: Children's understanding of how and why offspring resemble their parents. *Child Development, 67,* 151-171.

Sorrentino, C. M. (2001). Children and adults represent proper names as referring to unique individuals. *Developmental Science, 4,* 399–407.

Sperber, D., & Hirschfeld, L. A. (2004). The cognitive foundations of cultural stability and diversity. *Trends in Cognitive Sciences, 8,* 40-46.

Springer, K., & Keil, F. C. (1989). On the development of biologically specific beliefs: The case of inheritance. *Child Development, 60,* 637-648.

Springer, K., & Keil, F. C. (1991). Early differentiation of causal mechanisms appropriate to biological and non-biological kinds. *Child Development, 62,* 767 – 781.

Tajfel, H. (Ed.) (1978). *Differentiation between social groups: Studies in the social psychology of intergroup relations*. London: Academic Press.

Tajfel, H. (1981). *Human groups and social categories.* Cambridge, UK: Cambridge University Press.

Tajfel, H., & Turner, J. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-48). Monterey, CA: Brooks/Cole.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of inter-group behavior. In S. Worchel & L. W. Austin (eds.), *Psychology of Intergroup Relations*. Chigago: Nelson-Hall.

Tarr, M. J., & Gauthier, I. (2000). FFA: A flexible fusiform area for subordinate-level visual processing automatized by expertise. *Nature Neuroscience, 3,* 764–769.

Taylor, M. G., Rhodes, M., & Gelman, S. A. (2009). Boys will be boys; cows will be cows: Children's essentialist reasoning about gender categories and animal species. *Child Development, 79,* 1270-1287.

Townsend, J. T., Silva, K. M., Spencer-Smith, J, & Wenger, M. J. (2000). Exploring the relations between categorisation and decision making with regard to realistic facial stimuli. *Pragmatics & Cognition,* 8, 83-105.

Vanbeselaere, N. (1987). The effects of dichotomous and crossed social categorization upon intergroup discrimination. *European Journal of Social Psychology, 17,* 143-56.

Van den Broeck, H., Vanderheyden, K., & Cools, E. (2002). Linking cognitive styles and values. In: P. Vlerick, F. Lievens, & R. Claes (Red.), *Mens en Organisatie: Liber Amicorum Pol Coetsier* (pp. 245-261). Gent: Academia Press.

Van Oudenhoven, J. P., Prins, K., & Buunk, B. P. (1998). Attitudes of minority and majority members towards adaptation of immigrants. *European Journal of Social Psychology, 28,* 995–1013.

Venn, J. (1866). *The Logic of Chance*. London and Cambridge: Macmillan and Co.

Verkuyten, M., & Thijs, J. (1999). Multiculturalism among minority and majority adolescents in the Netherlands. *International Journal of Intercultural Relations, 26,* 91–108.

Verkuyten, M. (2003). Discourses about ethnic group (de-)essentialism: Oppressive and progressive aspects. *British Journal of Social Psychology, 42,* 371–391.

Verkuyten, M. (2005). Ethnic group identification and group evaluation among minority and majority groups: Testing the multiculturalism hypothesis. J*ournal of Personality and Social Psychology, 88,* 121–138.

Winnicott, D. W. (1969). *The child, the family, and the outside world.* Baltimore: Penguin Books.

Witkin, H. A. (1962). Psychological differentiation: studies of development. New York: Wiley.

Witkin, H. A., & Ash, S. E. (1948). Studies in space orientation: IV. Further experiments on perception of the upright with displaced visual field. *Journal of Experimental Psychology, 43,* 58–67.

Witkin, H. A., & Berry, J. W. (1975). Psychological differentiation in cross-cultural perspective. *Journal of Cross-Cultural Psychology, 6,* 4–87.

Witkin, H. A., Dyk, R. B., Paterson, H. F., Goodenough, D. R., & Karp, S. A. (1962). *Psychological differentiation*. New York, Wiley.

Witkin, H. A., & Goodenough, D. R. (1977). Field Dependence and Interpersonal Behavior. *Psychological Bulletin, 84,* 661-689.

Witkin, H. A., & Goodenough, D. R. (1981). *Cognitive style: Essence and origins.* New York: International Universities Press.

Witkin, H. A., Lewis, H. B., Hertzman, M., Machover, K., Bretnall, P. M., & Wapner, S. (1954). *Personality through perception: An experimental and clinical study.* New York: Harper & Brothers.

Witkin, H. A., Moore, C. A., Goodenough, D. R., & Cox, P. V. (1977). Field-dependent and field-independent cognitive styles and their educational implications. *Review of Educational Research, 47,* 1-64.

Wundt, W. M. (1916). *Elements of folk-psychology*. Tr. Schaub, E.L. London: Allen

Wyer, R. S., Jr., Bodenhausen, G. V., & Srull, T. K. (1984). The cognitive representation of persons and groups and its effect on recall and recognition memory. *Journal of Experimental Social Psychology, 20,* 445-469.

Xu, F. (2007). Sortal concepts, object individuation, and language. *Trends in Cognitive Sciences, 11,* 400-406.

Yang, K., & Bond, M. H. (1990). Exploring implicit personality theories with indigenous or imported construct: the Chinese case. *Journal of Personality and Social Psychology, 58,* 1087-1095.

Yzerbyt, V., Corneille, O., & Estrada, C. (2001). The interplay of subjective essentialism and entitativity in the formation of stereotypes. *Personality and Social Psychology Review, 5,* 141–155.

Yzerbyt, V., & Demoulin, S. (2010). Intergroup relations. In S. T. Fiske, D. T. Gilbert, & G. Lindzey (Eds), *Handbook of Social psychology* (5th ed., Vol. 2, pp. 1024-1083). Hoboken, NJ: Wiley.

Yzerbyt, V. Y., Estrada, C., Corneille, O., Seron, E., & Demoulin, S. (2004). Subjective essentialism in action: Self-anchoring and social control as consequences of

fundamental social divides. In V. Y. Yzerbyt, C. M. Judd, & O. Corneille (Eds.). *The psychology of group perception. Perceived variability, entitativity, and essentialism*. London: Psychology Press.

Yzerbyt, V., Judd, C. M., & Corneille, O. (2004). Perceived variability, entitativity, and essentialism: Introduction and overview. In V. Yzerbyt, C. M. Judd, & O. Corneille (Eds.), *The psychology of group perception. Perceived variability, entitativity, and essentialism* (pp. 1–22). London: Psychology Press.

Yzerbyt, V. Y., Rocher, S., & Schadron, G. (1997). Stereotypes as explanations: A subjective essentialistic view of group perception. In R. Spears, P. Oakes, N. Ellemers, & A. Haslam (Eds.), *The psychology of stereotyping and group life* (pp. 20-50). London: Basil Blackwell.

Zebrowitz, L. A. (1997). *Reading faces: Windows to the soul?* Boulder, CO: Westview Press.